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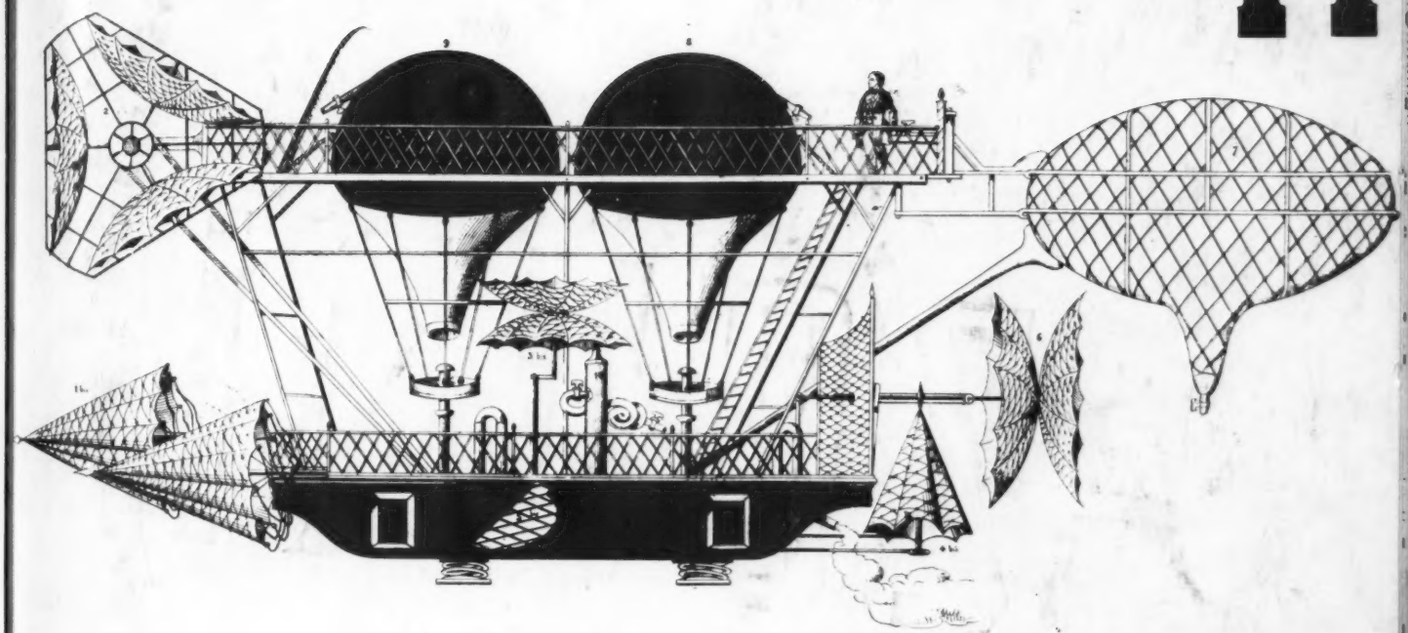

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New Pencil Points, November, 1943

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Next Month:

The December issue might almost be called a special Saarinen number. We have the honor of presenting Eliel Saarinen's Museum and Library at Cranbrook Academy of Art, Bloomfield Hills, Michigan, one of the few really great American architectural works of recent years. We are also proud to include an approach to the complicated problems involved in replanning the Detroit area, a method developed by J. Davidson Stephen, architect, which is based on extensive research carried out at Cranbrook under Saarinen's direction. Detroit architects have organized to study their city, with Saarinen as advisor. Stephen's method is a practical demonstration of the principles enunciated by Saarinen in "The City."

KENNETH REID, Editor; FRANK G. LOPEZ, Managing Editor; DON GRAF, Technical Editor; BERNARD RUDOFSKY, Associate Editor; MIRIAM WHITE, Editorial Assistant; JEDD REISNER, STANLEY SHARP, Drafting; PHILIP H. HUBBARD, Publishing Director; JOHN G. BELCHER Business Manager; JOHN ZELLNER, Circulation Manager. Cover design, layout, and typography by Rudofsky.

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VIEWS

Opinions from readers

Remarks from the editors

Data wanted

Changes of address

The House for One

Dear Editor:

I was interested to discover, in the October issue of PENCIL POINTS, pictures of my house. Mr. Alonzo Harriman did a good job with the house, but he evidently slipped up in supplying you with information about it, for I am *not* married, and the house was designed primarily for bachelor living. In fact, so strenuously was the FHA opposed to the womanless features of the house that it refused, for some time, to undertake the financing of construction. However, that is not an important point. If you can find Mrs. Whitney, either in the photographs or elsewhere, I shall be very happy to install her.

WALTER R. WHITNEY,
Assistant Professor of English,
University of Maine, Orono, Maine

Dear Mr. Whitney:

Thank you very much indeed for calling to our attention the misinformation we published in regard to your house. We blush to confess that one of our editors lost the memo containing the proper story and tried to replace it from memory.

I would not be surprised if as a result you might receive some proposals of marriage which you can, of course, disregard.

It was a pleasure to publish your house as an example to other architects and we congratulate you upon the progressive spirit it reflects.

EDITOR.

Vision Raised Above Detail

Dear Editor:

I am especially pleased with the emphasis you are giving to the broad aspects of overall planning. This is most appropriate and opportune in the light of the postwar planning program and the interrelation that is so vital to the interests of transportation, housing, recreation, etc. In this far reaching program, our vision must be raised above the detail into the realm of coordinated effort of design. Your recognition of this basic principle in design is timely and commendable. I trust you will continue the policy of featuring the comprehensive planning of postwar needs.

A. R. NICHOLS,
Landscape Architect and Site Planner,
Minneapolis, Minnesota

The Question of a Name

Dear Editor:

The progressive attitude of the last four issues of your magazine has impressed me. As a representative of your reading public I am taking this opportunity to commend you on this growth. I am under the impression that PENCIL POINTS has always enjoyed the largest circulation of the three U. S. architectural publications. In the past this has been due at least in part to the conservative nature of the subscribers as well as the magazine. Therefore I feel that special tribute should be paid to those who have taken the courageous and successful step forward recently displayed, a step involving the risk of displeasing those who are hesitant to accept the new and by nature yearn for the "good old days."

In view of the present policy of your publication I feel that the name, NEW PENCIL POINTS, is inadequate and not indicative of what the magazine now offers. Judging from your previous contest for a new name, you yourselves are aware of this. At the time of the contest the name, "PLAN," was submitted and although adjudged "excellent" was rejected as already being the property of some other publisher. May I ask if this still eliminates the possibility of acquiring the name? I venture that the present "PLAN" is sufficiently obscure to permit purchase of the title. (A similar transaction was made by TIME, INC. in acquiring the title, *"Life."*) I feel that the responsibility of your publication is a great enough one to make reconsideration of some such purchase worth while. Both simplicity and directness, as well as dignity, are contained in the one word, "PLAN." It also has a meaningful keynote for the future and would, in addition, lend itself well to cover layout. In view of the increasingly responsible function of your publication in a world of new building, I feel that this subject has definite importance and is well worth consideration.

WILLIAM M. RICE, Civil Engineer,
Douglas Aircraft Plant,
Tulsa, Oklahoma

Tents or Foxholes

Dear Editor:

I have just read the October issue of PENCIL POINTS in an Air Force camp with much interest. It is heartening to note that you believe we will return to a development of architecture which will be a compromise between the conservative style and the modern unconventional type as illustrated in many architectural publications today.

In the armed forces we generally have two types of shelter—the conventional pyramid tent, with a pitched roof; and the shelter without the roof known also as the foxhole. The pyramid tent provides ample shelter for many men in the various services of the U. S. Army.

Sometimes I am inclined to think that some of the modern architecture, without obvious shelter—that of a sloping roof—is almost as restless in appearance as a large vertical wall made of sand bags for protection against horizontal fire. . . . . .

The compromise development, as noted in your article, should produce a maximum of desired plan features, and at the same time reflect comfort and rest in the exterior as well as the interior.

MAJOR CHARLES N. ROBINSON, Air Corps

Thanks for interesting comment. Sorry you read compromise into our editorial. We neither advocate nor predict compromise; simply recognize that postwar world will have room for all shades of architectural opinion and expression. We stated our belief that average *will move in forward direction. No designer should compromise with his sincere beliefs, whatever they may be. All designers, however, are capable of growth and change in basic philosophy. We optimistically believe change is taking place toward progressive design and away from stodgy conservatism.*

EDITOR.

From Across the Border

Dear Editor:

With my cheque covering the cost of a two-year renewal on my subscription to NEW PENCIL POINTS, I should also like to send a word of appreciation for the excellent subject material in your periodical. NEW PENCIL POINTS has rapidly assumed the lead among other publications of its type, by its thorough analytical approach to problems of planning and design, offering up-to-date information, and with a sound conception of the social significance of architecture.

I look forward, with increasing pleasure, to reading your fine magazine.

ROBERT FAIRFIELD
Ottawa, Canada

Mason City, Iowa—20 Years Ago

Dear Editor:

The city planning procedure described in your August issue for Tacoma, Salt Lake City, and Corpus Christi, which called for more than the ordinary amount of participation by the local citizenry, is the kind most likely to lead to accomplishment. Of

THIS IS NO TIME FOR *False* ECONOMIE

America is not stinting on the quality or quantity of material these men are assembling as part of the world's mightiest war machine. If a certain kind of steel is needed, that certain kind of steel is used. Since both the steel and its use are essential, that is real economy. But some people seem to have the belief that *all* steel, regardless of its kind, must be saved for weapons and war material. They don't seem to realize that (1) there are innumerable kinds of steel and by no means are all of them suitable for weapons and war material; (2) there is essential need for steel in the buildings, machines and other facilities in and with which these weapons and this war material is produced; and (3) there is enough steel available for essential production facilities.

To refrain from using steel when steel is both essential and available . . . in the absence of adequate substitute materials . . . is neither economical nor safe practice . . . and certainly this is no time for false economies.

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VIEWS

course, participation does not guarantee results. Cities have complex personalities.

It may be of interest to know that a similar demonstration was carried out 20 years ago at Mason City, Iowa. The Engineering Extension Department of Iowa State College directed the project which was designed to show other Iowa cities how to find out where they stood as a community and how to plan for municipal changes and growth.

At Mason City sixteen local committees were set up and furnished written instructions as to the scope of their particular field, the considerations involved, data to be gathered, maps and charts to be prepared, etc. Milton J. McColm, a landscape architect, was temporarily employed by the Department to assist the local committees. Rolland S. Wallis, municipal engineer for the Extension Department, directed the work and prepared a report on the demonstration so that other towns might see how it was done. How well it served its purpose, I do not know.

Wide local participation in city planning generally is desired because it usually develops a continuing support for the policies and projects growing out of the effort. The participation must be real, however, and not just exist on an organization chart. Also desired are maps and charts drawn and explained so as to be readily intelligible. A minimum use of socio-economic-planning jargon doesn't do any harm, either.

Publicity given to good procedure in the preparation and maintenance of city plans is a fine contribution to that older close-to-home branch of planning which all of us can do something about.

HOWARD R. OLSON, Secretary
Chicago Regional Planning Association,
Chicago, Illinois

Winners of

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The Majestic Company and its Dealers and Representatives throughout the country are pleased to have this opportunity to not only announce the winners of the company's recently sponsored Fireplace Competition, but also to pay its highest compliments to the entire Architectural Profession. The original thinking and function qualities expressed in the many attractive and splendid entries demonstrate America's Architectural talent that will permanently contribute to our country's continued leadership as well as guarantee the building industry's postwar prosperity. May we also take this means to again publicly thank all who participated in the competition.

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1097 Wilton Ave.
Bronx 52, N. Y.

Second Prize
($100 Victory Bond)
Charles K. Hirzel
8406 109th Street
Richmond Hill 18, N. Y.

Third Prize
($50 Victory Bond)
Harry Leslie Walker
30 Elm Rock Road
Bronxville, N. Y.

In view of the splendid manner in which our Advisor and Judges performed the difficult task of appraising the many meritorious entries, we wish to also publicly thank them for their untiring and conscientious efforts and help.

Advisor:

Professor Wooster Bard Field
A.I.A., of Ohio State University
Columbus, Ohio

Judges:

Wilfred A. Paine, A.I.A.
Paine & Crumley, Archts.,
Columbus, Ohio

Herman J. Albrecht, A.I.A.
Albrecht & Wilhelm, Archts.,
Massillon, Ohio

George Hermann, A.I.A.
Hermann & Brown, Archts.,
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Data Wanted

HILBERT C. DUNING, A.I.A. 2901 Sander Street, Cincinnati, Ohio. (Data and catalogs for A.I.A. file, especially literature on residential and school buildings.)

F. W. WINTER, 1108 Anna Street, Elizabeth, New Jersey. (Volume 5, Number 6 and Volume 17, Numbers 1, 3, 5, and 6 of *The White Pine Monograph* Series.)

CIRCULATION DEPT. of NEW PENCIL POINTS wants to assist a subscriber to obtain a copy of *The White Pine Monograph* Series Vol. II, No. 4, "A Suburban House and Garage."

HUMPHREY NOLAN, Architect, 51 Chambers Street, New York City. (Data and catalogs for complete A.I.A. file. Also samples.)

(Continued on page 106)

NEWS

Design and construction
Developments afield
Building regulations
Related professions
Products progress

A meeting of the New York Building Congress on Wednesday, November 3rd, was addressed by Alfred C. Bossom, Architect and M.P., who had been touring this country for the preceding six weeks as a member of the British Mission studying American construction methods and costs. The Mission covered about 10,000 miles and visited all sectors of the country.

Mr. Bossom, who practiced here in the early twenties, but who returned to his native England seventeen years ago, expressed great admiration for the American organizational genius which has resulted in a rate of production in the building field approximately twice the prevailing rate in England. Construction costs, he declared, are approximately equal in the two countries, but the higher rate of productivity per man-hour results in higher wages for the American building worker.

The task of rebuilding in postwar England is now being planned for with the avowed intention of making more of the products of industrial civilization available to the mass of the people.

In the three and one-half million houses built in England between the wars, said Mr. Bossom, not a single modern refrigerator was installed. The same situation in general applied to all forms of mechanical and electrical labor-saving devices. This situation is to be corrected after the war when, in tackling the huge job of providing at least five million homes, the attitude will be to improve as far as possible the environment and living standards of the people.

Leon Henderson, former OPA administrator, warned the building industry of the problems which can be expected in their field, beginning almost immediately, continuing through the period after Germany's defeat and after that of Japan. In his talk before a joint luncheon of the Producers' Council and the New York Building Congress, November 11th, he charged us with lack of a central economic postwar policy, noting that we have no specific plan as has England and Russia. He listed areas in which our government should be taking stands: contract termination, disposition of plant and facilities, disposition of surpluses, continuation of price, rationing, priority, and other controls; foreign relief and rehabilitation, unemployment allowances, severance pay, social security expansion, veterans' allowances; cooperative efforts by business groups, cartels, etc.; credit mechanisms and policies for reconversion and foreign trade, demobilization of servicemen, war workers, and taxation.

Mr. Henderson's speech was the highlight of a two-day conference held in New York by The Producers' Council wherein the building industry problems expected in the coming period were discussed and a platform adopted which aimed to prepare for and handle these problems.

When mayors begin to feel obliged to discuss city planning before a group of their citizens—that is real news. Philadelphia's mayor, Bernard Samuel, who ran for office again in the recent election and his opponent, democratic candidate William C. Bullitt, accepted an invitation to compete in their conceptions of city planning at a luncheon meeting, October 21st, of the Citizens' Council on City Planning. A series of questions had previously been sent to the speakers and in this way the two men kept more or less to the same points.

This meeting was the public debut of the Citizens' Council, organized recently by professional, neighborhood, civic, and welfare organizations which were active last year in getting an ordinance passed, setting up a new Planning Commission. Over fifty organizations have joined in this effort to make Philadelphia planning conscious and to enable the citizens to participate in the process of planning.

William C. Bullitt spoke more or less in the terms natural to city planners, spoke of the master plan that must be developed, of the definite physical improvements needed, of the capital budget, of the proper order in which planning work should be done, and of the sources for financing city planning, in this case federal funds being indispensable. Being a new candidate, Mr. Bullitt felt free to condemn Philadelphia's previous handling of its city planning problems. However, he also showed a good understanding of planning principles.

When Acting Mayor Bernard Samuel spoke he followed closely the pattern laid down by the time honored and successful politicians, first complimenting the members of the Council and quoting the famous platitude that "planning is for the people," and then mentioning certain needs in transportation, utilities, recreational and educational facilities, and similar items, as well as touching on a "ground plan" for the city. Mr. Samuel's talk was especially colored by his close relationship to the city's financial system, his knowledge of its strength and weakness.

Magnesium, the metal which has received so much discussion and reverence in these past months, has now been brought out from a sub-deb to a full-fledged debutante. Until recently magnesium was used largely for bombs, flares, airplane engine parts, etc. which required only about 40% of the current production of 3,000,000,000 pounds yearly. The Army has now decided to use it to lighten airborne and portable equipment and airplanes themselves. This change will not only start using up the accumulated stockpile but can even create a need for more than the available supply. Equaling in importance the present advantages of this metal in certain uses is the valuable experience which manufacturers are accumulating in handling magnesium; many will develop foundry, extrusion, and casting facilities which will form the basis of another large postwar industry.

A remarkably successful annual summer Conference on City and Regional Planning was closed September 18th at the Massachusetts Institute of Technology, having been attended by more than double its usual number of registrants. Sponsored jointly by M.I.T. and the American Society of Planning Officials and conducted by Professors Frederick J. Adams and Flavel Shurtleff, the conference attracted participants from sixteen states and from the Dominion of Canada. This Conference, which is now in its seventh year, is composed of a series of discussion seminars held each morning and afternoon for a two-week period and is primarily intended as a "refresher" course for planning technicians and for administrative officials engaged in some phase of planning work.

Planning principles, techniques, legislation, and administration were covered during the Conference, particular emphasis being placed on the application of technical and administrative procedures to specific problems in the field of city and regional planning. Proposed solutions to problems in housing, urban redevelopment, transportation, and so forth, were discussed and consideration was given to bills now before Congress dealing with various aspects of postwar planning. Other topics discussed included improvements in zoning procedures and municipal taxation policies.

One of the Conference sessions was devoted to a presentation by Mr. Frederick P. Clark, Planning Director of the Regional Plan Association of New York, of economic and physical studies now being carried out by his Association. At another session Mr. Stuart D. Currier described the work of the Bergen County (New Jersey) Planning Board of which he is Supervisor. His outline of surveys and procedures in the fields of community planning, zoning, and subdivision control was further exemplified by an excellent exhibit of maps and diagrams prepared over a period of years by the County Planning Board.

Participants in the Conference were:

James L. Berrall, Town Planner, Montclair, N. J.
John Bland, Director, School of Architecture, McGill University, Montreal, Canada
Mrs. O'Brien Boldt, Exec. Sec., Citizens' Council on City Planning, Philadelphia, Pa.
Rudolph C. Brauer, Ass't Engineer, Dept. of Public Works, Richmond, Va.
*Henry Cohen, Brooklyn, N. Y.
Aimé Cousineau, Director, City Planning Dept., Montreal, Canada
Stuart D. Currier, Supervisor, Bergen County Planning Board, N. J.
Walter A. Devine, Town Engineer and Secretary of Planning Board, Brookline, Mass.

NEWS

*Luis T. Dorich, City Planning Department, Ministry of Public Works, Lima, Peru
*Miss Betty Fullerton, Seattle, Washington
Miss Jeanette Gevov, Ass't Adviser, Project Services FPHA, N. Y. C.
*Miss Norma F. Goldstein, New York, N. Y.
*Cyril Mc. Henderson, London, England
Robert H. H. Hugman, Architect, San Antonio, Texas
Victor A. Hyde, Planning Technician, Alabama State Planning Board
*Floyd M. Jennings, Great Falls, Montana
*Thomas J. Kent, Jr., San Francisco, Calif.
George S. Koyl, Dean, School of Fine Arts, University of Pennsylvania, Phila.
Edward J. Langeloh, Building Inspector and Planning Technician, Rye, N. Y.
Roy F. Larson, Architect, Philadelphia, Pennsylvania
*Miss Gladys P. Lyons, Winthrop, Mass.
Eric F. Menke, Assoc. Engineer, Office of the Chief of Engineers, War Department, Washington, D. C.
John Barstoe Morrill, Landscape Architect and Planning Engineer, Forest Preserve District of Cook County, Illinois
Richard C. Murrell, Architect, Baton Rouge, Louisiana
August L. Noel, Planning Technician, Newport, (R.I.) Planning Board
Joseph H. Orendorff, Regional Project Adviser, FPHA, Cleveland, Ohio
Mrs. Arthur Neal Robinson, Architect, Atlanta, Georgia
G. Leslie Russell, Architect, Royal Canadian Naval Service, Digby, Nova Scotia
Frank Sohn, Manager, Architectural Service and Postwar Planning Research for Libbey Owens Ford Glass Company, Toledo, Ohio
Glenn Stanton, Architect, Portland, Oregon, and member, Portland City Planning Commission
Ephraim A. Tyler, Property Manager, First National Bank, St. Paul, Minnesota and Member, St. Paul City Planning Board
*William Wilson Wurster, Architect, San Francisco, California

*Registered in M.I.T. Graduate School of City Planning

Robert Moses, the ever provocative New York Park Commissioner, seized the occasion of his talk on October 22 before the American Institute of Steel Construction's annual convention at Rye, New York, to emphasize the immensity of the postwar emergency and to drive home the necessity for both public and private action to cope with it. He said: "There is a tendency on the part of big business to assume that if government restrictions are released after the war, private initiative and capital can take care of the entire postwar employment problem. It is even claimed that the present tremendous employment figures can be maintained, and that the rate of spending can be continued without very much reduction after the government expenditures drop from around one hundred billion dollars a year to thirty or forty billions; men in the armed forces and in industry will be taken care of without any public works, relief work, home relief, bonuses, increased unemployment insurance and other security benefits, all by the unbeatable American spirit of free enterprise.

"The sooner your industry and others get away from this hokum, the better off you will be. Cuts in government spending, cancellation of war contracts, demobilization of armed men and plant workers, no matter how gradual and humane, are bound to produce the most serious unemployment problems of our history. . . . It requires a combination of all forces, public and private, which make men, machines and money work, which facilitates the exchange of goods and the flow of credit, marshaled for the greatest test to which we have ever been put. The best brains of the country will be none too good for the solution of this problem. . . ."

Mr. Moses concluded with a plea to the men of the Institute: "The important thing now is to stop vaporing about the great new world of inventions, mechanization of everything in sight, and effortless living, and concentrate on a resumption of hard, competitive work on a larger and better scale than before the war. Steel has probably been the greatest single product in the winning of the war. It has an equally great role to play in the peace. We began to get real war production when we stopped talking and got down to business. The same logic must apply to postwar plans."

Dr. Charles E. Merriam was the guest speaker at a joint meeting of the Chicago Chapter of A.I.A., the Illinois Society of Architects, and the Producers Council Club of Chicago, which was held on September 28th and which drew a comparatively large attendance of 120 members. As Dean of the Social Science Department of the University of Chicago and as vice chairman of the National Resources Planning Board, Dr. Merriam is well qualified to speak on the subject chosen, "Planning During and After the War."

He spoke of the need for returned soldiers' employment which has already come upon us and which will continue for some time after the war. He said that local industry is not always able to reinstate former employees in spite of promises to do so. He gave full credit to the efforts of states and municipalities to meet this employment need with provisions and appropriations but said that the problem is so huge a one that industry and local governments may not be able to fulfill obligations to these young men, in which case it becomes inevitable for the federal government to step into the gap with make-work plans.

At the same meeting Lieutenant Commander Clarkson, U. S. Navy, spoke and told of the Navy's need for commanding officers in the construction battalion and urged that application be made by architects with liberal building superintendents' experience.

In an article by Miles Colean, Chairman of A.I.A. Committee on Postwar Relations with Government, published in the October-November issue of the Bulletin of the Illinois Society of Architects, he compared the depressions of the early twenties and thirties with the present condition wherein war has "restrained but not destroyed the architects' prospective clients." He listed the reasons for expecting a postwar building boom: the increasing growth of cities along with the continued depreciation of existing structures, and the ever increasing availability of saved monies. Then he exhorted the architects to be up and doing, "sell to their prospective clients the idea that it is vital to have plans ready when the first break in the labor and material supply occurs . . . The architect must bring to his client a good knowledge of the building needs and the economic prospects of his community . . . must also keep himself constantly current with the labor and materials situation . . . new materials and appliances."

A competition was opened recently for the construction of a modular design exhibition in the materials section of the Department of Public Works of New York City. The Structural Clay Products Institute, the sponsors launched the competition at a dinner given October 23rd for the architects of this city department. The purpose of the undertaking is the immediate furtherance of dimensional coordination of building materials as it is believed that the coming postwar period offers an unequalled opportunity for changing over the building products industry from its maze of sizes to the regulated sizes of modular design. Because the industry is largely shut down at present it can make this change to new measurements with a minimum of retooling. The major advantages to be gained are speed of construction and lowered costs.

The members of the Structural Clay Products Institute have taken an initial step in this work by promising to deliver to the Department of Public Works their materials for postwar construction in the four inch module which has been determined the most practical size to adopt. It is being urged that all the building industries follow suit and real progress is being made in this direction. At the November semi-annual meeting of The Producters' Council this step will be brought before the members for consideration.

Mr. A. Gordon Lorimer, Chief of the Bureau of Architecture of the New York Department of Public Works has given a strong helping hand to the project by his decision to design many of the city's postwar buildings on the modular system as far as has been made practical to date.

Modular design is not a new theory but one that has had little well directed effort until it was taken under the sponsorship in 1939 of the A.I.A., The Producers' Council, and the American Standards Association. Their work is being carried on under what is known as ASA Project A62 for the Coordination of Dimensions of Building Materials and Equipment and is being directed by Mr. Myron W. Adams of Boston.

An especially interesting example of radiant heating is the recent factory addition (60 x 80 feet) to the Murray Corporation buildings at Towson, Maryland. The opportunity for study of the contrast between the two heating systems existing in previously constructed buildings of the same company, and the recently installed radiant system makes this addition worthy of attention. Lawrence A. Menefee, Architect, of Baltimore, Maryland is the designer and A. M. Byers Company of Pittsburgh the supplier of heating equipment. Standing cast iron radiation exists in the older office building; unit heaters in the original factory structure; floor radiation in this latest addition. All three are operated from the same stoker-fired hot water boiler. Comparative studies have been made and the new addition scores highest with a "definitely

comfortable" atmosphere, "no drafts," at 65½ degrees air temperature (75 degrees floor temperature) while the older buildings are considered "cold and drafty" or having "an atmosphere of stuffiness" when at 70 and 75 degrees. Although unit heaters are installed as precautionary measures they have never once "kicked-on" in spite of 10 degrees above zero temperature and in spite of high monitor-window heat loss.

Straight runs of 1¼-inch wrought iron pipe were field torch-welded to the end sections to form three banks, as shown in accompanying photographs. The finished coils were laid on strips of 1-inch celotex, 8 inches wide, which rested on the crushed

stone bed. Manifold headers were 2-inch wrought iron with 8-foot lengths of 1¼-inch pipe on 18-inch centers shop welded to them. After testing for leaks under 400-pounds of pressure, the coils were covered with a 6-inch topping of concrete. After coils were positioned bench-marks were placed on the ceiling beams to indicate position, so that anchors for future machinery foundations would not interfere with piping. The accompanying radiant heating coil layout and floor section explain the general design.

Bridgeport, Connecticut is to have one of the great war housing projects, Chestnut Gardens, which is designed to provide pleasant living quarters for 214 families of war workers. Ground was broken September 7 for what is listed as the largest privately financed war housing project applied for to date in that state under 608 of FHA. Cost is estimated at $1,250,000 and completion is scheduled for May, 1944. William Lescaze, the architect, reports that there will be twelve buildings in all arranged around large lawns on a ten-acre tract. The typical apartment is a two-story garden type and there are to be 214 family units of 3½ or 4½ rooms each, each tenant having his own main entrance and service entrance. Parking areas and playgrounds as well as supervised rooms for the children of working mothers will be included.

Chicago is soon to start construction of its largest federally financed and operated war housing development for 1,500 war workers' families. Initial occupancy is scheduled for 1944's spring months and completion for the following August. Plans specify two-story brick row-house groups of 6 to 8 units each, renting at $40 per month or less per family. FPHA is providing land and funds for construction, the estimated cost approximating 9 million dollars. The Chicago Housing Authority is to negotiate contracts with architects, builders, and others, and will supervise construction and manage the project when completed.

To speed-up the training of draftsmen, needed so badly in all phases of war production, including mechanical and structural drafting, a series of 18 discussional type slidefilms have been made available as part of the nations' wartime educational program. Their chief purpose is to aid the instructor in mechanical and architectural drawing.

This film can be obtained from the Jam Handy Organization, 2900 East Grand Boulevard, Detroit 11, Michigan.

Samuel E. Lunden, President of the Southern California Chapter of A.I.A., in speaking on *The Architects' Viewpoint of Postwar Planning* before the Planning Congress of Los Angeles County recently, traced the past and future problems for architects to solve and indicated his conception of the future ones. He coined a new phrase, "Pre-Victory Planning for Postwar Redevelopment Projects," urging architects to study now what we want, for postwar years, to determine the immediate postwar needs and develop a plan to care for them with especial consideration for population growth. Urban Redevelopment Legislation was discussed, including Senator Thomas' bill. Special stress was laid on the impossibility of communities working alone because regions have to be considered first and separate communities second. President Lunden cautioned the architects on the latter point as it is one that many good designers who are conscious of a city's needs fail to see. The work done by the National Resources Planning Board in this direction was praised. Mention was made of the present planning work being done by Los Angeles, St. Paul and New York.

"Start an Architect on A Plan NOW!," the slogan featured for some months by the Detroit Steel Products Company in a series of two-page advertisements in leading magazines, is naturally an idea that will be applauded by the architectural profession. It happens to be a sound injunction from the point of view of the general welfare and we would like to see other national advertisers take up the cry in their messages to the public.

NEWS

A public preference poll has been taken on the questions of what type of plumbing and heating the persons who will be living in the average post-war house expect. The results of this study made by the Crane Company are presented by them, not as a conclusive answer to any of the questions asked, but as an interesting case study of the thinking of a broad segment of the American public which is seriously considering building or buying a home after the war.

One generalization that Crane has drawn from this survey is that as a whole the public is not expecting or wanting a Buck Rogers type of home such as many lay magazine writers have been talking about. They expect improvements in design and construction, they anticipate economies that modern production methods can bring, but they neither comprehend the radically different planning that many designers feel is possible and probable, nor has there been awakened in them much real hunger for deep-seated and fundamental advances in house forms. Still further advances in bathrooms and kitchens are looked toward with pleasure and the overcoming of onerous labors in the heating of homes is being striven for. General dissatisfaction with the present system was definitely registered.

An important warning stressed by Crane was that in evaluating the answers of such a survey it must always be remembered that the desires of the person questioned are usually relative, that even though he may say a large kitchen is preferred to a small one, or an analogous case, still he is willing to forego the large kitchen if economy puts the choice up to him between a large living room and a large kitchen, and so forth. Answers are only valuable when carefully considered in relation to many other desires expressed in the questionnaire. In all, Crane has showed a very sound attempt to evaluate the answers they received. The poll was accepted chiefly as a gauge as to what degree the public has grown in appreciating and desiring the new materials, new planning, and new types of construction. The final conclusion reached by Crane was that "the trend was distinctly towards conservatism, but it is evident that the American public wants and expects improvements in plumbing and heating that have been tried and found practical."

Another survey of interest to architects is that conducted for Ponderosa Pine Woodwork. The main conclusion drawn was that woodwork, a primary pre-war material, will retain a major place in the plans of those who build or remodel after the war. The questions asked concerned many minor items of preference such as storage space, built-in drawers and shelves, shoe racks, cupboard doors, louvered doors, full-length mirrors, more windows, more bedrooms, enclosed porches, recreation rooms, etc. The naturally expected conclusion from the data collected was that future home owners want all of these items that their budget will afford.

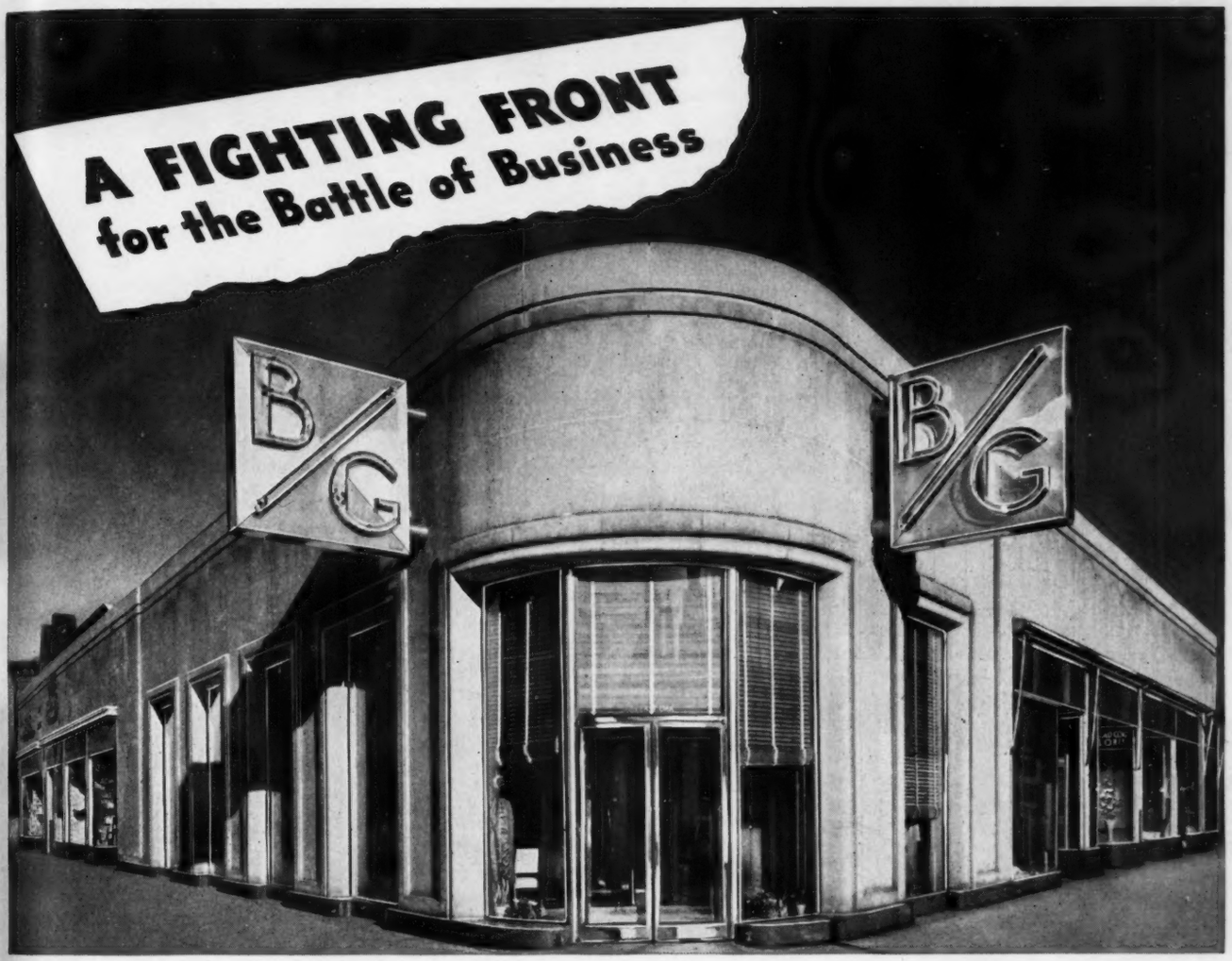
This factory-built home is expanded by opening out the wings for the sides. A few quick movements slide walls, floor, and roof into place, providing extra rooms on each side of the center section. The interior below, taken from the bedroom, shows living-hall and dining room.

Delivered complete for living, no on-site labor is needed for this war housing unit. Assembly-line production of complete and furnished units has been announced by the Palace Corporation as in use and in process for war housing. They expect to be able to manufacture similar houses, complying with FHA mortgage specifications, for postwar demands, and to construct them at a figure of something less than $3,000 for four or five rooms and bath. One reason for this low cost is the small number of man hours required for construction, less than 200, or about 10% of the hours needed for on-site construction of small houses. Another is the lowered costs in factory methods of production, not a small point of which is the indoor work which eliminates dangerous construction tasks and permits the employment of elderly and handicapped workers instead of the usual age groups most in demand.

Already more than 5,000 expansible houses have been built by this company for FPHA in addition to hundreds of portable laundries, offices, lavatories, and town hall units. They have also developed a "suitcase house" which can be transported as a crate less than 26″ by 16′-8½″ by 8′ which expands to 15′-5″ by 16′ by 8′. This basic model can be enlarged by use of the accordian-fold principle in a very few minutes. (Palace Corporation, Flint and Saginaw, Michigan.)

The University of Michigan reports that the first award of the Albert Kahn Scholarship, open to students of Architecture or of Engineering, has been given to James H. Blair, Jr., Senior Student in Architecture from Gary, Indiana.

(Continued on page 104)



Architect: B. Leo Steif & Co., Chicago

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REVIEWS

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Books

Medieval American Art

By Pál Kelemen. Published by the Macmillan Company, 60 Fifth Avenue, New York 11, N. Y. 8" x 11" page size, illustrated, two volumes. $22.50.

Pál Kelemen, a Hungarian by birth and one who has devoted his life to the study of art, has produced a work which he calls, most logically, *Medieval American Art*. He believes that after the Spanish conquest influences brought to bear on the Americas were so different in spirit from native conditions and trends that a specific era was closed; and that by that invasion another period came into being.

In his introduction Kelemen notes that he had little knowledge of the original America when he, as a student, became interested, and that as his experience grew he became fascinated by the available information—that his fascination became more intense when later, he had his first contact with the sites and the cultural remnants that had been discovered. His surprise was, no doubt, similar to that of many Americans whose training in the arts ignored cultures which antedate the voyages of the fifteenth century. We, too, were steeped in the history of Europe, and from a practical angle had little occasion to know or profit from work that had developed its own traditions, totally foreign to our education and actual work.

As Kelemen points out, the Western Hemisphere was peopled from the North to the South by groups, part nomad, part sedentary, who over the centuries produced centers of civilization which were in some instances far more developed than in others: cities that had highly perfected cultures; and areas—such as those of our own Southwest—in which progress in some arts was evident but which in general, remained merely homes of scattered tribes. The author has chosen to treat broad groups individually, according to habitats ranging from the southwestern United States to Peru, so as to focus attention on particular characteristics of peoples whose differences in development were strongly marked.

The work is in two volumes, one of text and one of illustrations, the latter well chosen and well presented. The subject matter is divided into chapters on architecture, sculpture, metal work, weaving, city planning, etc., and gives a magnificent picture of the life of early America. The author is not hesitant in reporting the ghastly trail of loot and destruction left by the Spanish invaders. Their only interest was treasure, and for the sake of obtaining it, the most glorious objects of art in gold and silver were melted down into ingots to satisfy the hunger of the conquerors. Kelemen notes the surprise of those European scholars who were so fortunate as to see the first actual trophies before systematic destruction became the order of the day. Such waste in wartime appears inevitable, so that acknowledging that America in its youth was just another war casualty is a little trite, but it is still a matter deeply to be deplored. There was little reason for this stupid uprooting unless the missionaries who followed the soldiers feared that any tie to the past was dangerous. Be that as it may, Kelemen has worked assiduously to gather records and pictures of buildings and objects, and in his text gives a most interesting description of what remains today, and what the life of people scattered over the Americas must have been.

Much of the material has not been presented before and, apparently, to obtain satisfactory pictures a number of trips had to be made to actual sites. As noted, various chapters deal with architecture, sculpture, and the crafts. It is unfortunate that no plans are included. Photographs of some models are shown but one would be interested in knowing whose opinion guided these restorations. The plans, however, would have told far more; as one looks at the pictures of buildings side by side with photographs of sculptures, one is conscious of a lack of emphasis on the actual use of the structures—a matter of far greater significance than any interest in decoration. Plans would have indicated the spirit and function and have made the work just that much more valuable. In the chapters on allied arts, Kelemen does give a thorough analysis of people's lives and the skill of workers, a contrast which makes the missing sense of organization of buildings—how they were planned and how they were built—more obvious.

This is definitely a work that merits the attention of individuals who want to know what the original America produced without benefit of Europe, and, perhaps, learn also how in our sweep over the lands of the aborigines we destroyed a great deal that was precious. *Medieval American Art* is thorough and broad in scope, and will be valuable as source material as well as for inspiration.

—Ely Jacques Kahn, F.A.I.A.

The lower illustration shows a Chimu gold ceremonial knife from Peru, now in the Archeological Museum, Lima, Peru. The upper one is of a Maya Maize-god from Copan, Honduras, and is now in the British Museum.

Structural Frameworks

By Clyde T. Morris and Samuel T. Carpenter. Published by John Wiley & Sons, Inc., New York. 8¾" x 5¾" page size, illustrated, 272 pages.

An excellent volume on the theory and practice of structural frames. To any student of reinforced concrete and steel construction, this volume will be a real help. It contains up-to-date information both on the mathematical theory and practical application of the various formulae applicable

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to severe wind stresses in tower buildings, various frames with movable loads such as Crane runways, the design of roof trusses, combined footings, radio towers, etc. It also contains some very fine design charts and tables. The book is not easy reading, and only those who are really concerned with the detailed design of such structural elements will be interested in it.

The theory of continuous frames has been used both in this country and Europe many years. Actually, the development of reinforced concrete in Europe was entirely due to the use of these theories.

JOSEPH DOUGLAS WEISS, A.I.A.

National Emergency Specifications for the Design, Fabrication and Erection of Stress Grade Lumber and Its Fastenings for Buildings

Directive No. 29, August 9, 1943, Conservation Division, War Production Board, 63 pages 8½ x 11. Superintendent of Documents, Washington, D. C., 15c.

The permanent value of this booklet belies its title. The table of allowable unit stresses may represent only an emergency but the balance of the book which treats of design procedure forms a valuable outline of wood engineering. The bibliography of some 44 entries is certainly worth while to all those who take their wood engineering seriously. Some of the text reads a little bit like the instructions for making out your income tax, with its cross references to other paragraphs, parts, tables and appendices. It is unfortunate that the book does not show in what ways the emergency specifications differ from formerly accepted practice so that a comparison could be easily made. Such a comparison would, of course, not affect the design in any way but would be instructive and informative.

—DON GRAF

Letters and Lettering

By Paul Carlyle and Guy Oring, with text by Herbert S. Richland. (159 pages, 8" x 10", ring-bound, McGraw-Hill Book Company, Inc., New York. $4.00.)

This book is designed for artists, advertising men and printers but it might also serve a very useful purpose in the architect's office in the lettering of presentation drawings or in the design of printed matter. Although the preface states that all the alphabets "are presented as unquestionably of good character and smart styling," there are some alphabets which are undoubtedly corny and some others that are in execrable taste. However, even the bad ones might suggest variations which would be useful for ordinary lettering or type that doesn't answer the need. Block letters, a great many scripts, exotic lettering, old-fashioned lettering, initial letters and some pretty weird modern alphabets are included. The dedication is clever enough to be worth special mention—"To Men of Letters."

—DON GRAF

Practical Perspective Drawing

By Philip J. Lawson. (210 pages, 6" x 9¼", illustrated. McGraw-Hill Book Company, Inc., New York. $2.75.)

A combination of beautifully made drawings and very wordy text accounts for the more than 200 pages of this book. The book is more suitable to the needs of the experienced delineator for a reference than it is as a means of self-instruction for the uninitiated. The explanation of basic principles is weak.

As far as the architect is concerned the title belies the contents. The large portion of the book which is devoted to the problem of the commercial artist unfortunately dilutes those relatively fewer pages with which an architect would be concerned. The architect will want to know considerably more about viewpoints, location of the picture plane, the drawing of sectional plans, the use of measuring lines, why the vanishing points are where they are, and many other matters not included or not sufficiently explained.

—DON GRAF

(Continued on page 85)

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Aviation Is a Client

No man can doubt today that the postwar growth of air travel and air transport will provide useful and constructive work for perhaps millions of people for years to come. War has so speeded the development of aeronautic science that we may fairly look to the air and its future conquest as the source of the great new industry that will provide the added large scale employment needed by expanding modern industrial civilization.

Plane production capacity, which has reached astronomical heights* during the war, will not, of course, continue at anywhere near the same level. But we shall have, according to conservative estimates, a sustained capacity to turn out civilian planes by the thousands and at least three hundred thousand such planes in use within three years of the war's end. We already have eight hundred and sixty-five major airfields in this country as against only seventy-six two years ago. As for the smaller airports with shorter runways there are now over twenty-one hundred with indications that many more will be needed as time goes on.

Architects and planners should not be slow to catch the implications of these figures and others that are available from the Civil Aeronautics Authority. A vast amount of ground facilities of all types will be necessary; first, to replace the obsolete and obsolescent buildings that now serve existing fields, and, second, to provide for the needs of hundreds of new small fields. All of these airports will have to be related to existing communities with improved facilities for surface transportation. It will take at least fifty years to satisfy the ultimate physical requirements of the complete national system of airways.

Leaving entirely out of consideration the needs of the military, there remain two main divisions of future air activity; (a) the commercial air carriers handling passengers, mail, express, and special kinds of freight on scheduled flights and (b) the operation of thousands of small planes on unscheduled flights by individual owners. In a comprehensive article which follows, Mr. F. R. Meisch of Northwest Airlines has gone into great detail about the architectural needs of the first of these divisions and has by implication suggested something of the facilities that will have to be provided for the second.

A question immediately arises as to how this tremendous expansion of ground facilities for flying is to be paid for. The answer is that it will be done by a combination of public and private investment which will be amortized through the years out of the earnings of the growing industry. The prospective benefits to society at large through the development of a complete and adequate system of air transportation are sufficient justification for the public contribution. The opportunity for profitable enterprise is obvious enough, we believe, to attract the necessary private capital. The automobile industry has demonstrated within our lifetime that constructive progress pays for itself.

The architect has an important place to make for himself in the total picture of aviation. In so far as he acquaints himself with the problems involved in the design of air facilities properly related to the cities and towns they serve he will be called upon to make his contribution. The aviation industry is a client worth cultivating.

Kenneth Reid

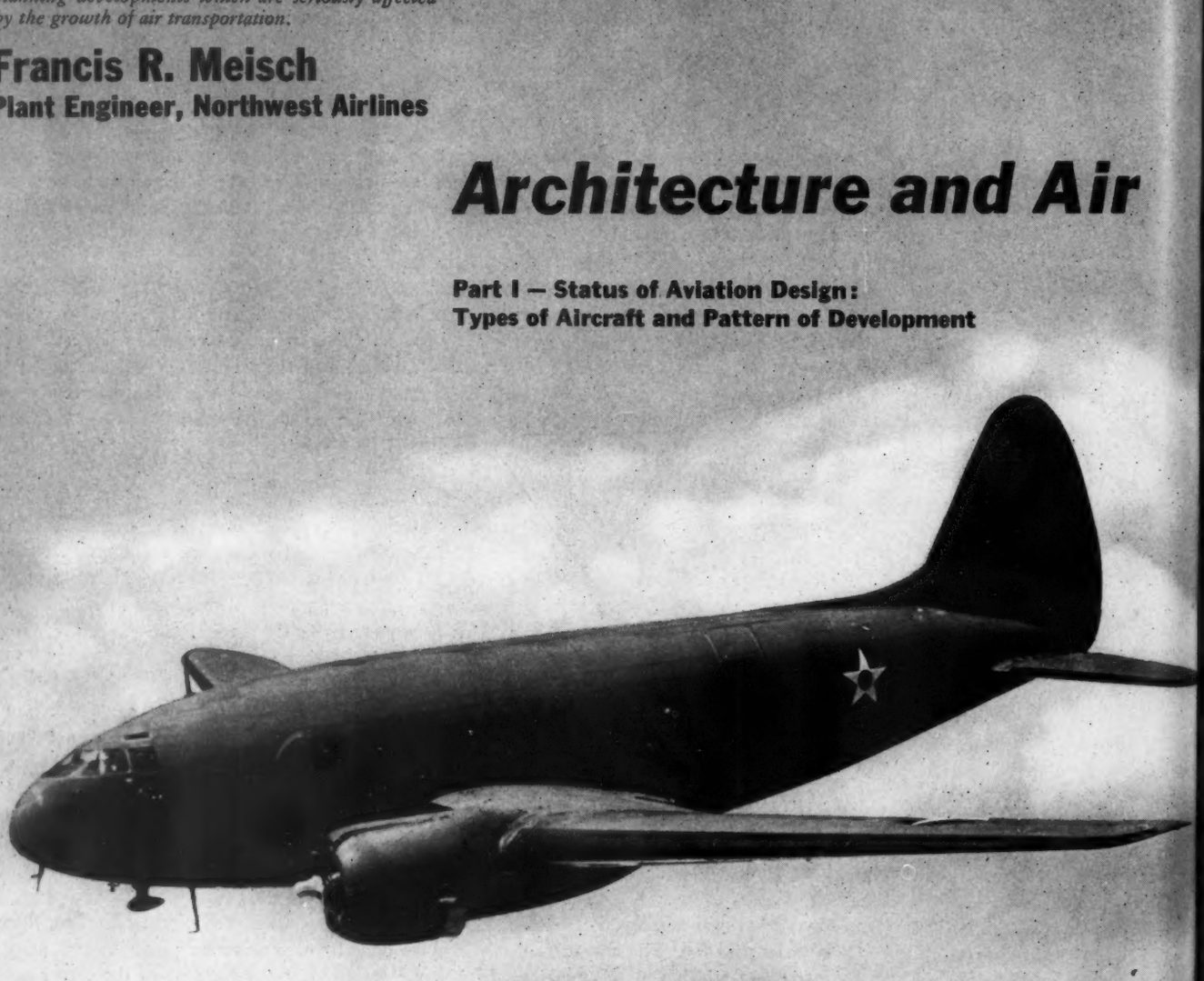
* *20 billion dollars in 1943, 30 billion dollars in 1944. Compare with 3.7 billion as all-time peak for automobile industry in 1941.*

Francis R. Meisch, Architect, of Minneapolis, Minnesota, is Plant Engineer for Northwest Airlines, Inc., and in this capacity has had much to do with new construction, remodeling, and postwar planning for air transportation. The plant engineering section of Northwest Airlines functions, to a certain degree, as does an architect-engineer firm. In this article Mr. Meisch supplies basic information on the background of aviation progress and the architectural and city-planning developments which are seriously affected by the growth of air transportation.

Francis R. Meisch
Plant Engineer, Northwest Airlines

Architecture and Air

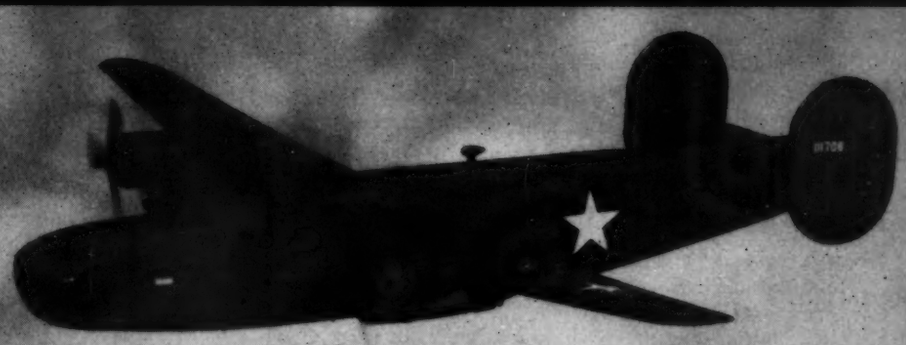
Part I — Status of Aviation Design: Types of Aircraft and Pattern of Development



The plane above at right is a Consolidated Liberator Bomber. That at the left a Curtis C-46 Commando troop transport. Both are military prototypes of commercial planes to come.

Americans have for years prided themselves on being the most modern and progressive nation on the face of the earth. This was especially true in the fields of science and technology, but was sadly lacking in the fields of architecture and city planning. True, individual American architects provided exceptions, but by and large the basic principles of architecture and city planning and the revolution in architectural thinking were not manifest in America until the last decade. Architects and city planners had just reached the point where they took the automobile for granted and planned for it as a routine part of American life when suddenly a new world conflict produced a new age—the Air Age—and with it a multitude of architectural and city planning problems. History may well record World War II as the beginning of the Air Age—for not since the invention of the steam engine has mankind been faced with a machine that could so change the course of civilization and the living habits of millions of people.* This the airplane has amply demonstrated it could do and has indicated it will do. Aviation, premature in World War I, has today grown to such proportions and in such a rapid manner that not only has the American public been caught off guard, but the architect and city planner as well have failed to comprehend it, or to plan and think in aviation terms as a part of life today.

*Assuming, of course, that internal combustion engines and self-propelled, earth-bound vehicles are essentially extensions or applications of principles embodied in the steam engine.—Editor.



Transportation

The greatest problem now facing aviation is the obsolescence of practically all of its ground equipment, as represented by airports, hangars, shops, terminals, etc. But the most dangerous form of obsolescence that faces the professional planner and all Americans is their thinking both general and architectural, with respect to aviation. Fundamentally, the trouble might be credited to an educational system which has taught rowboat geography and has failed to teach basic international economics.

In order to plan for anything as gigantic as aviation, it is necessary to know something about the principles upon which it operates and the factors which influence its growth. Such questions as follow are very pertinent. What will the future of aviation be? What will influence its growth? Will this growth be sporadic or constant? Will this growth be unlimited? And will this growth be permanent? The answers to these questions are many, but out of the conflicting mass of available information, certain facts are beginning to stand out clearly.

Airplane and Airport Design

Technologically, aircraft design has now achieved a state wherein the physical size of the plane is limited by external factors such as the size of existing airports, the thickness of runways, the size of available hangars, the economics of operation, and the efficiency with which such planes can be utilized. This is comparable to skyscraper design, wherein limiting factors are land available, zoning and setback laws, economics of cost and operation, and efficient utilization of such a structure—not the physical height of the structure. To date, aircraft designers have not regarded colossal investment in airports and ground equipment as limiting factors but have gone ahead designing bigger, better, faster, safer planes. Limits in physical size of airplanes will be reached when operators find that they cannot economically or safely operate planes larger than a certain size, or that cost of airport construction or physical limitations on airport size are the ruling factors. Some technical variations in aircraft design may very likely change the existing pattern of aviation. Such developments are the helicopter and the flying wing. The helicopter bids fair to revolutionize aviation since its safety features, as compared with the "cub" plane, cannot be equaled for private use, as well as a wide variety of commercial uses. Then, too, there is the glider, towed singly or in trains by a locomotive plane. If operations of this sort can become both physically and economically possible in all kinds of weather, commercial aviation will have a way of circumventing the limitations bound to be imposed on the physical size of aircraft. It is not the purpose of this discussion to describe in detail technological advances in aircraft design—there are plenty of books on such subjects—but technological advances in other fields will be mentioned as they pertain to some phase of aviation.

The present-day pattern for aviation is divided into three phases: (1) Military Aviation, (2) Private Aviation, (3) Commercial Aviation. There is no reason to believe that this pattern will differ in the post-war world, although its component parts will necessarily assume varying degrees of importance. Military aviation is having its heyday during the present conflict and is shaping history. It is questionable how important it will be as a single factor in relation to future city planning, especially the decentralization of key industrial areas and their attendant living spaces.

Private aviation will again come into its own with peace, and will undoubtedly contribute more toward decentralization than military aviation. This will be especially true if the helicopter is placed upon the market as the "flivver plane" for every man. The attendant change in the pattern of individual life and community planning will be colossal and chaotic if not closely controlled and intelligently planned for. Such a change need not be feared, since when and if it comes it will be a gradual process severely regulated by the supply and demand for the helicopter and the ability of the public both to economically possess and to operate such a plane.

Commercial Aviation

Commercial aviation (the operation of scheduled air transports on an intranational and international basis) will also have its period in the postwar world, and will be a powerful factor in preserving peace and in bringing all nations closer together. Today it is being expanded to aid in prosecuting the war by supplementing military aviation in the transport of personnel and cargo. Commercial aviation will influence architecture and city planning because it will assume prime importance in the transportation of passengers, express, mail, and certain types of freight. Its coordination into the physical pattern of the community, and the community's support or lack of support for it, will have a decided effect upon the private and business life of the community. Previous to the Air Age cities grew great because they had good harbors or were situated where several railroads met. In the Air Age, the airport becomes the city's world harbor, and great cities will grow where the terminals of great circle air routes are located.

Consider the future of aviation and of commercial aviation in particular, for commercial aviation bids fair to assume the greatest immediate importance in the postwar world. Present-day airports, in which are now combined the three phases of aviation activity, will become specialized airports handling only one phase such as military, private, or commercial. As aviation grows, there will be additional subdivisions of airports for still more specialized functions. Military aviation will have special fields for flight training, advanced training, bomber training, pursuit bases, bomber bases, military cargo, etc. Private aviation will have separate fields for flight training, local pleasure flying, public itinerant traffic, and of course, special airports for private flying clubs. Commercial aviation will require separate fields for passenger and cargo traffic, with a possible subdivision to provide separate fields of each type for intranational and international air traffic. This specialized subdivision of airports will be true of all large communities (1,000,000 population or over) but will vary with small communities in proportion to their population and specialized demands. Commercial airports serving the same community will have to be planned in *(Continued on Page 39)*

relation to one another so that passengers or cargo requiring transfer to another plane at another port will not be delayed too long.

The number of fields necessary for any specialized activity will be determined by the demand and the number of flight operations that can be accommodated on a type of airport standard for such an activity. There exists today at every airport a certain operational limit for peak traffic periods, which is a function of the runway and taxiway pattern, the number of parallel runways, and the time required to conduct a landing or takeoff operation. When operations reach the limit for peak periods, either an addition must be made to the existing runway system or an additional airport must be constructed. A number of airports within the United States have already reached their operational limits—a condition largely due to increased activity as a result of the war, but considering existing bans on private flying, the postwar picture for these fields still appears to be one of over-congestion.

From the standpoint of present-day airport traffic control, the relation in any community of one field to another is as important as the relation of all of them to the central community pattern. There is a limit to the allowable density (nearness of airports to one another) so that air traffic, circulating around each airport preparatory to landing, will not collide. The allowable density pattern will change only if new technological advances are made in traffic control or if aircraft types change radically in their performance ability as evidenced by the helicopter. Little thought has as yet been given to zoning community areas with respect to specialized aviation activities. For example, it appears obvious that a flight training field should not be located next to a commercial airport, nor should a flight training field be located in a densely populated neighborhood; yet such errors in planning will result unless regulations are formulated and enforced far enough in advance of a surge of new airport development.

Effect of Mass Production of Aircraft

At the outset of the present world conflict, the United States had the finest system of commercial air transport lines in the world. A startling fact, often overlooked, is that the entire prewar commercial air transport operation in the United States was carried on with only 350 planes. Consider the effect on airport planning and development in the postwar period if, as experts predict, the staggering sum of 25,000 planes for passenger travel and still another 25,000 planes for cargo transportation will be necessary for domestic use alone. This is a long-range viewpoint; such growth will not happen overnight. However, with aircraft manufacturers all set up for mass production, the number of commercial aircraft in use can be multiplied many times, amazingly quickly. Such growth will necessarily depend upon demand for commercial aircraft. It must be carefully controlled, or chaos will result.

The growth of commercial aviation hinges largely upon political and governmental action, both national and international. The action of the Civil Aeronautics Board in awarding feeder lines, new routes, and route extensions to existing and new airlines will be very important intranationally. So also will be the awarding of mail and express contracts. Internationally, commercial aviation will be dependent upon peace terms at the end of this war, and upon the action, both individually and collectively, of the governments of international powers who bid for air commerce.

The new field of international air law is a potential bone of contention. There must be established a unified international air traffic control panel of some sort, with power to regulate traffic, to set standards, to determine who will engage in international air traffic, and to decide to what extent international air agreements will be reciprocal. Just who will establish a policy of freedom of the air and its limitations is a moot question. The establishment of an open port system for planes and the question of restricted areas will also have to be settled.

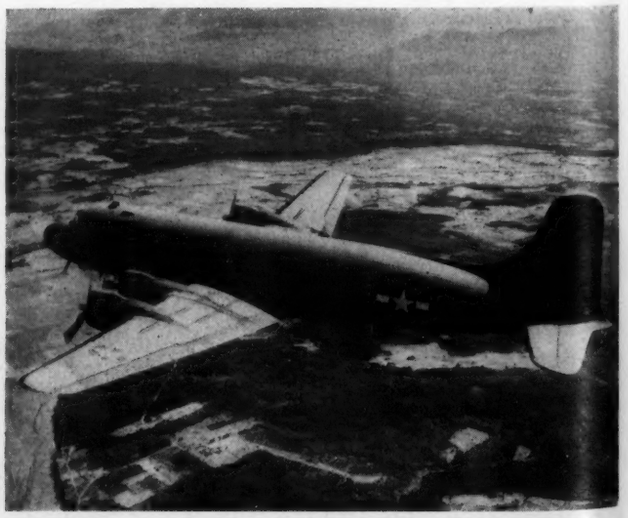
Four New Ideas:

There exists today a potential demand for a gigantic commercial aviation system. The realization of such a system will be based upon entirely new concepts, understanding of which is essential. These are mainly as follows: the relation of space and time, the re-study of physical geography, the re-analysis of commercial geography, and the capabilities of the airplane.

1—Airline Space-Time

First, a person must understand that the invisible merchandise of an airline is time, and that this special *Airline Time* makes a number of things economically and physically possible that are impossible for ordinary land or water carriers. Airline Time represents a conquest of space heretofore unequaled. In integrating time and space the airplane has made Airline Time, rather than land miles, the measure of distance. It is necessary to realize that this earth is fast shrinking in size. No spot on earth is more than sixty hours from any airport. By air, the Minneapolis-St. Paul area is only 13 hours from London, 16 hours from Moscow, or 26 hours from Chungking. Similar schedules can be created for any

Continuing the sequence of photographs of transport planes, past, present, and future: The cover of this issue shows an air transport designed in 1856 by one B. Chauvelot (drawing from Institute of the Aeronautical Sciences) and a DC-4 commercial plane, the workhorse of tomorrow's airlines (TWA photo.) Below, Douglas DC-3, the standard airliner prior to the war. Below, right, Naval transport C-54, one of the military planes which is even now threatening the DC-3 with obsolescence.



locality. Such conquests of space are usually put aside as achievements for the future. It is difficult to comprehend that such travel is possible today and that only the world-wide conflict prevents the global establishment of commercial runs to serve far distant points. Consider that these airline time-distances are computed on the basis of an average speed of only 300 miles per hour. Add to this the fact that 400 miles per hour on long flights will more likely be the cruising speed of the near future. The skeptics will have to be convinced if communities are to be well planned and capital wisely invested for today's Air Age.

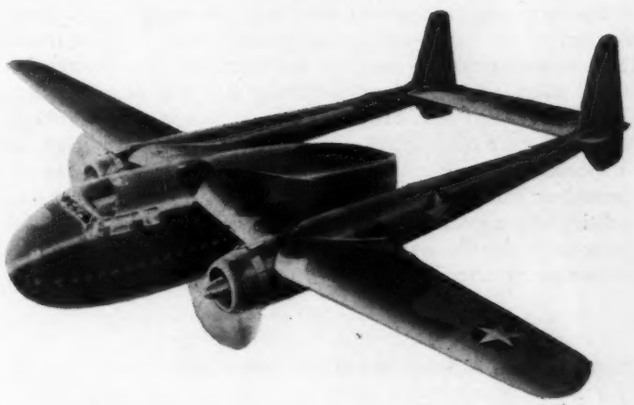
2—The Bird's Eye View

Secondly, a person must acquire a new concept—the Air Age concept—of physical geography. For aircraft there is no difference between land and water, desert or mountain, county line or international boundary. Physical barriers are set aside while in flight and must only be considered seriously when landing or taking off, or when trouble develops. Physical geography will be subordinated to commercial geography in determining the air routes of the future. The main exception to this would be the location of refueling bases as established in conformity to physical and geographical conditions. The airplane can take advantage of the shortest distance between two points—the great circle courses over the surface of the earth—and follow these courses by celestial navigation. Add to this an examination of the earth in the form of a globe. Of prime importance to Americans today is the fact that the land masses of practically all the important world areas are concentrated in the northern hemisphere, and are extremely close to one another by aerial navigation over the polar regions. Polar routes offer the possibility of providing refueling bases for the land plane, which, up to a certain gross tonnage, is far more economical to operate than the seaplane.

3—Payload Geography

Thirdly, a new concept of commercial geography must be understood. It is necessary for any commercial air route to be economically successful if it is to remain in existence. The economics of air line operation using land planes is based upon the fact that the shorter the distances between refueling bases the greater the payload. Then, note that these short-hop refueling bases can be adequately provided on polar routes and the fact that 90 per cent of the earth's population is concentrated in the northern hemisphere. In this concentration of population the supply and demand for air travel will be found, and a means for a quick, eco-

NEW PENCIL POINTS *is indebted to Mr. F. R. Meisch for the drawings used within the text; to the Civil Aeronautics Authority for the diagrams of airport growth; and to the Institute of the Aeronautical Sciences for the Cruikshank and Hoboken cartoons. Photographs reproduced by courtesy of U. S. Navy, Acme, United Airlines, Skyways Magazine, Curtiss-Wright, Lockheed, Fairchild, Douglas Aircraft, American Airlines, Pan-American Airlines, Crouse-Hinds, Portland Cement Association, Vought-Sikorsky, Sigurd Fischer, Rocky Mountain, Hedrich-Blessing, Byrne, Peele, George Jervas, Robert Damora. Many of these sources contributed valuable editorial suggestions.*



Below, Lockheed's mighty Constellation, another high-speed, long-range plane with great cargo capacity. Now used for military purposes only, exact performance data are not available; but in civilian use it can carry 55 passengers and a crew of 9 nonstop from Los Angeles to New York in record time. Above is a new all-steel cargo plane designed by Fairchild for military transport. Performance data are secret; the plane is apparently not yet in production.

nomical exchange of goods will be desired. A study of the location of existing key cities and the nation's economy will still further determine air routes.

4—What Planes Can Do

And lastly, an understanding of the capabilities of the airplane is necessary to complete the Air Age picture. Aircraft have been increasing in size, efficiency, and cargo- or passenger-carrying capacity ever since man first flew a heavier-than-air machine; but developments of the last few years have truly made the Air Age possible. The standard, reliable DC-3 of the airlines faces relegation to the feeder line routes of the future. Already a number of aircraft types, expressly designed to perform air carrier functions on an economic basis, which are either in existence, in production, or on the drafting table, supersede it. Characteristics and performance data vary but all have several things in common. Physically they are bigger ships than the airlines operated in prewar days; they are designed for greater payloads; they operate at higher speeds, with greater efficiency, forecasting reductions in the cost of air travel and transportation. They incorporate the latest technological developments and operate with a greater factor of safety. The skyliners of the Air Age will be real luxury liners, with conveniences previously unthought-of for aircraft. Some will be multi-engined planes operating in the stratosphere, at speeds of 400 miles per hour or better, on nonstop transcontinental or international flights. The payload-versus-range characteristics of many cargo ships must necessarily remain a military secret until after the war, a fact which makes it difficult accurately to forecast air cargo developments.

C.A.V.U. No Matter What the Weather

Aviation in the Air Age will no longer be subject to the vagaries of the weather. Airlines will be able to maintain more accurate time schedules than surface carriers (railroads and buses) by means of technological developments. Stratospheric planes will fly great-circle courses, above weather, and will land and take off through any kind of weather via the radio beam and radar. Dense fog and blinding snow will not ground planes large enough to be equipped with all the latest instruments and safety devices. This inability of the small cub type of aircraft to carry all the necessary safety instruments will finally render it obsolete except for military and commercial aviation training purposes; presupposing, of course, that the helicopter will be the plane for all general-purpose flying.

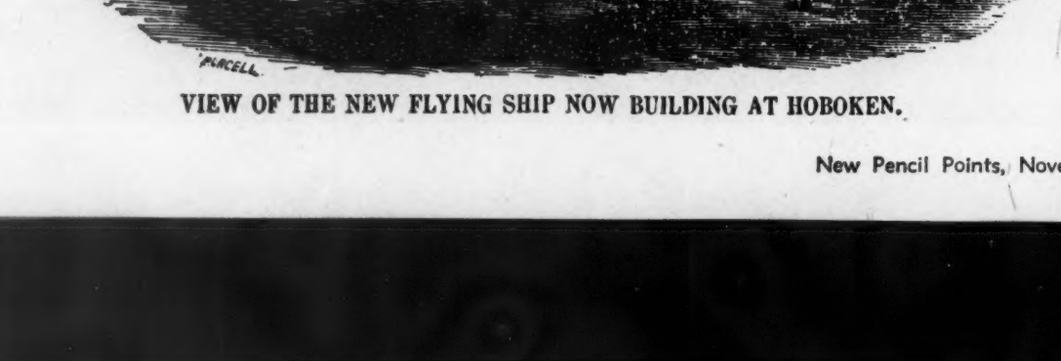
Airway and airport traffic control has anticipated these new technological developments, which will allow aircraft to be "stacked" in layers or spaced in "trains" for blind flying. Such safety devices will simplify traffic control problems and will allow a greater density of aircraft per unit of space, during bad weather, than has previously been possible. The use of radar, however, will not allow a greater traffic density than can be handled under C.A.V.U. (clear and visibility unlimited) conditions. The problem of increased numbers of aircraft and greater densities per unit of space has already received considerable study by traffic-control experts, who have proposed methods of handling it.

Rates Down, Demand Up

Increased operating efficiencies will permit changes in rate structures, which will in turn increase the demand for air travel and transportation. Reasonable estimates indicate that current passenger rates (about 5 cents per mile) will be reduced to 3 or even 2½ cents per mile. Present cargo rates of 80 to 90 cents a ton mile will be reduced to 15 or even 10 cents, comparing favorably with existing rail express rates which average 11 to 18 cents per ton mile. Motor freight, at 5 to 7 cents per ton mile, will be relatively safe from competition.

Such rates suggest basic shifts in methods of travel and transportation. It is reasonable to anticipate that all first class mail going more than 100 miles will be transported by air. The majority of first class rail and Pullman passengers will also travel by air. Much cargo now moving by rail express in excess of 150 miles will probably be carried by air. It is also possible that some high-grade cargo now moved by LCL freight will be diverted to air transportation. It is not difficult to foresee the passing of the ocean liner in favor of hourly transoceanic air service. Already foreseen are operations involving the establishment of non-stop transcontinental flights, local runs and express flights between major terminals serving minor ports, and feeder line systems serving the main transcontinental trunk line. The increased use of air travel and transportation is not expected to supplant wholly, but rather to supplement, other forms of transportation; in fact, it will create new traffic problems and stimulate other forms of transportation. Changes that will necessarily accompany this shift in transportation medium will have profound effects upon city planning and will provide additional realms for architectural activity.

An early attempt at building a cargo air vessel.



VIEW OF THE NEW FLYING SHIP NOW BUILDING AT HOBOKEN.

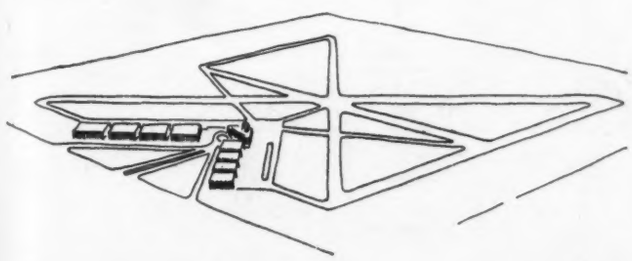
Part 2—AVIATION AS A STIMULUS TO ARCHITECTURE: Basic Requirements for Ground Facilities

This architectural activity will be centered principally at airports. There will be administration buildings and control centers to design, office buildings, passenger terminals, possibly small hotels, newsreel theatres, cafes, restaurants, recreational facilities, clubs, schools, service stations, bus stations, garages (especially heated public garages for colder climates), hangars, shop facilities, overhaul bases, manufacturing plants, fire stations, and power plants. For cargo ports there will be warehouses with heated and refrigerated sections, sheltered plane and truck loading docks in colder climates, receiving and shipping facilities, possibly markets, and the usual collection of hangars, shops, offices, administration and control buildings. In the city proper there will be ticket offices, travel agencies, and terminals with limousine service to airports. The problem of handling a large percentage of mail by air will result in specialized post office facilities at many ports. Additional thought will reveal even more opportunities for the architect.

Airports

The primary center of all this activity being the airport, it is reasonable to assume that airport location and plan deserve primary attention. Factors roughly governing the selection of site, eliminating politics, are as follows: type of airport, anticipated development, relation to city or services it will perform, relation to existing airports, altitude, topography, soil conditions, adequate drainage, man-made and natural obstructions, relation to, and condition of, existing traffic arteries, public transportation services, railroad facilties, weather conditions such as fog, wind, etc., the nearness to, or cost of, adequate water supply, sewage disposal, electric power, fire protection, telephone and telegraph lines, land costs, construction costs, existing rules on runway clearance lines, glide angles and air traffic control, and most important, the possibility of future expansion.

First consideration should be given to development of a master plan and to acquiring enough land to provide adequately for expansion for a considerable period of time. Failure to proceed in this manner, a weakness of many an airport plan, has caused waste of much municipal money. Secondly, consideration should be given to locating buildings, with respect to each other and to clearance lines, so they can be expanded to meet growing needs. This is especially true of administration buildings with loading ramp positions, of commercial airline hangars, and of manufacturing plant hangars.



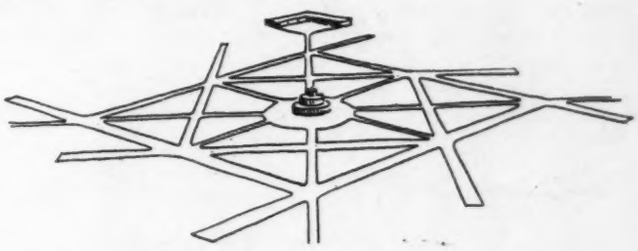
CAA Standards

A number of basic airport types have been proposed and are in existence, and many theories of airport design. The *standard design* is that proposed by the CAA, with variations by stages.

This plan, which has previously been declared quite adequate, can have its operational limits increased only by using dual, possibly triple, runways. Its great fault is that the usual number of loading ramp positions which can be accommodated is insufficient for more than dual-runway traffic. Furthermore, operational conflicts occur at the ends of the runways and taxi distances vary, becoming extremely great as the number of parallel runways is increased. This type of airport plan has runway clearances now considered below minimum, as well as runways of non-uniform length. This criticism is all from the theoretical standpoint. In actual practice a still greater picture of inadequacy emerges when additional physical limitations of site, terrain, obstructions, ill advised expansion, etc. are taken into consideration. This, the common pattern of many existing airports, renders them obsolete and impractical. The standard CAA field can accommodate only 60 to 75 operations per hour, usually much less under adverse weather conditions.

The "Central Design"

One of the most interesting designs from a theoretical standpoint, and possibly relative to immediate future developments and potential variation, is the *central design* proposed by Hans S. Lubig of the CAA. This scheme cuts taxiing of aircraft to a minimum, and permits many landings and takeoffs in a relatively short period of time.



The principal advantages of the central design are its lack of conflict between flight operations, uniformity and small variance in taxi distance, uniformity in length of runways and the possibility of runway expansion, as well as the separation of runways by a distance of 1000 feet or more. By providing for central design variations such as the use of island stations around the central control building, it is possible to set up 20 to 60 loading ramp positions. The distance from hangar areas to the central terminal is a minimum from all parts of the field—though it is much greater than is common in the operation of most commercial airlines today. In the future, major overhaul facilities (at bases requiring them) may have to be located well away from the terminal as a means of providing for expansion of all buildings and grounds facilities. Cost studies have indicated that the necessary underground access to the field's center would soon be paid for by savings resulting from smaller taxi distances and increased operating efficiency.

International Airports

Of unusual interest will be the development of special international airports. For the immediate postwar period it is safe to assume that international traffic will utilize existing major commercial fields. As traffic volume increases, special fields designated as ports of entry and departure will necessarily be created to serve areas or regions rather than a single municipality. Such ports will usually be developed near great metropolitan areas because supply and demand factors are concentrated there. Problems of adequate customs and immigration control will be simplified if international traffic is segregated from domestic traffic. Linguistic problems of airport traffic control in handling foreign aircraft, as well as the necessary radio facilities and mechanical equipment, are likely to be too numerous to be supplied adequately by the average commercial field. The great variety of aircraft likely to be engaged in international traffic may impose a special pattern or require a larger-than-average airport.

Up to the present the aircraft designer has continuously challenged the airport designer to plan for new aircraft with varied operating characteristics. Conversely, it appears fair for the airport designer to challenge the aircraft designer with a new type of airport which would eliminate many of the planning bottlenecks that occur at existing airports. Some thought has been devoted to this new airport as a single system of parallel runways three

Airport System for a City of 1,000,000 Population

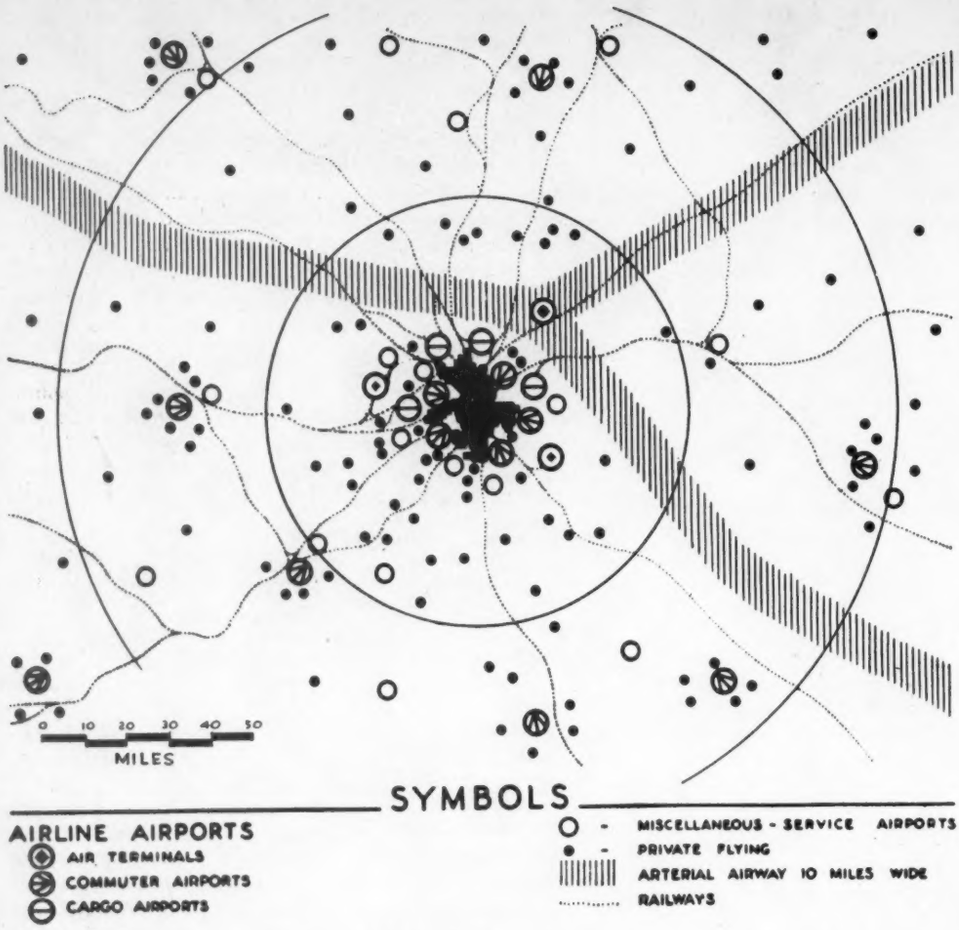
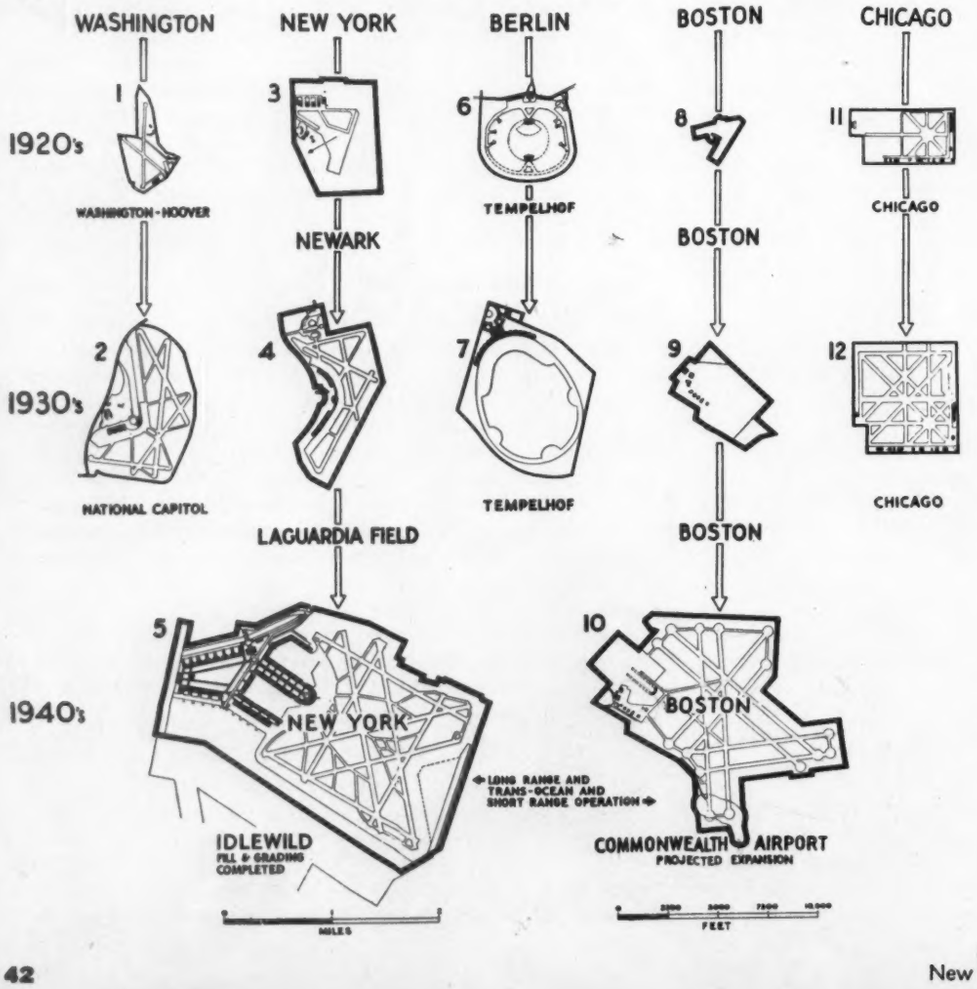
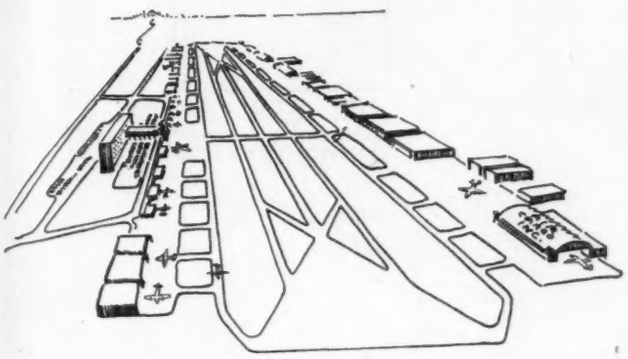


Chart above shows possible distribution of various types of airports about a future metropolitan center. Note terminals and cargo airports close in; outlying and close-in commuter airports; private fields interspersed between. Below, size of metropolitan airports by decades, all drawn to same scale. Both charts from Civil Aeronautics Authority.

Increasing Size of Major Commercial Airports



to ten miles in length, each separated by a thousand or more feet. Parallel to these runways would be the taxiway or ways, and still more distant the aircraft-parking and building lines. Such an airport is predicated upon the theory that the higher the range of aircraft cruising speeds, the higher the landing and take-off speeds and so the greater the length of the runways needed as a safety factor for normal operations and instrument landings. Cross runways, which eliminate so much valuable airport area from the buildable class because of clearance lines, are omitted. In their place a V-shaped paved area is provided at each end of the parallel runway system to allow for landing and take-off with reference to wind direction and velocity. This "funneling in" of flight operations challenges the aircraft designer to design a plane little affected by cross winds and provided with landing gear capable of maximum directional control at ground speeds.



An airport of this pattern would require glide angles and clearances only at the two ends of the field, and room for runway lengthening, if any, only in those same directions. Expansion in the number of runways could be anticipated by limiting buildings to one side of the field, or by planning initially for a definite number of future runways before starting construction on both sides of the field. Furthermore, it would be possible to provide adequate areas for terminal and hangar developments—even allowing for both cargo and passengers to be handled at the same port on opposite sides of the field. Additional advantages would be the minimum taxi distances and the quality of runway lengths.

Terminal Buildings

Next to airport design, terminal building (or station design) seems to be the biggest problem. There will be as many airport administration buildings or terminal designs and types as there are airports if present trends continue. Already there exist some basic administration buildings patterns, created by the CAA and influenced by structures at La Guardia Field and at Washington National Airport. The latter buildings have some admirable features, but none can be considered the ultimate in terminal design. Administration buildings may very likely become "typed" in plan, but with minor variations according to type or function of the airport, and size of community or volume of air traffic served. Here again, as in airport design, many factors enter the picture. The basic problem seems to lie in developing for the terminal building a master plan which will permit inexpensive alteration and expansion, as a means of allowing financial investment in the building to be limited initially and then increased at intervals to parallel traffic growth at the port. Terminal buildings will have to continue to accommodate increasing passenger, mail, and cargo traffic until each type of traffic has increased sufficiently in volume to justify separate terminal or port facilities. For small feeder line airports this may never occur—at least in the normal life of any station facilities erected immediately after the war. At large airports this break will occur sooner; some cities will be ready for separate passenger and cargo terminals at the end of the war.

Eliminating cargo terminals for the moment, let us consider passenger terminals and the factors influencing their design. Here exists the greatest problem in dealing with variables that has come before architects in a long time. The basic factors influencing passenger terminal design are as follows: the aircraft, the passenger, his friends, his baggage, the spectator, mail and express, the automobile, and the employee. The question of terminal building location and views of the field is usually predetermined by the airport plan. The obvious relation of such a structure to soil conditions, utilities, highways, etc. will be neglected here as this is also predetermined to a degree by the airport plan. Analyze the basic factors and one common characteristic is apparent: they are all *mobile, variable* factors, changing in size and quantity or both, and all act as integrated parts of the entire scheme.

To consider them in detail, aircraft are increasing in physical size, in carrying capacity, in number, and in requiring greater area for manoeuvering. But *the rate of these increases is indeterminate.* The day is past when commercial airlines will standardize on one type of plane, as almost occurred when the DC-3 was commercially accepted. However, the number of aircraft manufacturers now operating with gigantic production setups indicates that a great number of types and sizes of commercial planes will be available. Competition between airlines foreshadows the use of different types of planes by each line in its effort to fly more functional ships than competitors. The problem of operating feeder lines, local short-stop flights (milk runs), non-stop transcontinental and trans-oceanic routes points to the use of different types of aircraft for specialized uses within a single air carrier company.

Facilities for Passengers

Greater carrying capacity and increased demand for air travel leads inevitably to an increase in number of passengers, possibly to increased acceptance of baggage at minimum charges over and above the 40-lb. free limit. The passenger is a particular problem in that his demands for service at terminals are bound to become more varied and complex as air travel expands. The basic passenger demand is for toilet facilities, communications, and food. Toilet facilities must be ample; adjacent lounges are essential. Communications are of three varieties: telephone, telegraph, and mail. The telephone booth is easily located at focal points in numbers sufficient for all needs. Telegraph offices are not as flexible; it is not profitable to provide them in quantity. Telegrams must usually be sent from telephone booths or ticket counters. Airport post offices, for air mail, can be enlarged by adding public service windows, general delivery facilities, even post office boxes. The mail pick-up box can be strategically located to serve widely separated parts of the terminal. As for food and refreshment, it is reasonable to assume that large airports will have diversified developments such as cafeterias, restaurants, public and private dining rooms, lunch counters, soda bars, sandwich bars, tap rooms, "sky rooms," grills, clubs, etc.

Secondary facilities for passenger service are also multiple and still more diversified, although these will be essential only at major airports. Baggage check rooms or mechanical lockers, separate and distinct from the airlines baggage room, are desirable. The demand for candy, cigars, news, magazines, souvenirs, drugs, etc., must be satisfied. Newsreel theatres, billiards, bowling, and other amusements may be demanded by the passenger who has time on his hands. Short-duration, round-trip passengers will desire protected parking lot facilities. In colder climates, heated parking garages and service facilities may be profitable. Barber and beauty shops, as well as many hotel accommodations (sleeping rooms, showers and dressing rooms, conference or exhibition rooms, laundry and tailor services, etc.) will also be desired. Many demands of a minor nature, but extremely important to the passenger, such as the procurement of cigarettes, candy, and soft drinks, can be satisfied by installing automatic vending machines. The passenger, a mobile unit, must be controlled and guided for safety and operating efficiency, in his own interest. The rate of passenger growth is also indeterminate. Passenger travel has been seasonal, but the war has temporarily, perhaps permanently, ended seasonal fluctuations.

Attendant upon many air travelers are friends and relatives, to see them off or welcome them. These well wishers alone can

create a serious problem, (aside from that of the idle curiosity-led spectator) since they will do anything to remain with or meet passengers. It is questionable whether present methods of ticket-taking and gate-control can survive unchanged.

Next consider the spectator, who usually pays the taxes which finance the airport and its terminal building, and consequently feels that he has a right to use it as a place for sight-seeing, entertainment, and dining. The old fashioned habit of going down to the railroad station to watch the trains come in has now been replaced by a kindred mass movement to the airport. Surveys vary, but the majority indicate that spectators now outnumber passengers in the ratio of 6 or 8 to 1. Charging admission to the field has not curbed spectators; and though it has added another source of revenue, it has sometimes greatly irked the taxpayer-spectator. How long the airport will remain a novelty and thus have a spectator problem is also indeterminate and must be considered in terminal design. It is essential to segregate the spectator from all operations, and from passenger services and activities, to as great a degree as possible.

Separation of Mail and Passenger Traffic

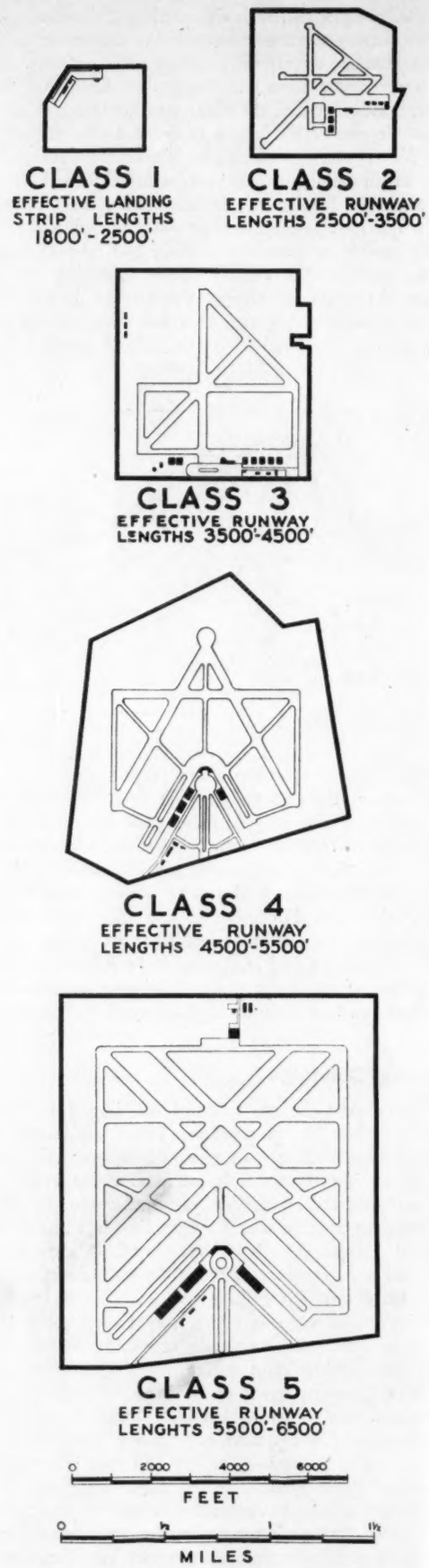
Mail and express, on the increase at an indeterminate rate, depend greatly upon a proper circulation system to expedite their movement and handling. They also require adequate, efficient equipment, plus readily expansible space for their handling. The airmail post office, already mentioned, will have much greater importance if volume of air mail continues to increase until all first class mail going more than 150 or 200 miles is handled by air. Under such conditions it is not unlikely that independent post office structures will be required at major airports and terminals to handle and sort mail. Since feeder line operations are likely to involve a combination of mail and passenger traffic, it appears extremely doubtful that air mail and passenger operations will be carried on at separate fields, even at major terminals. It does seem logical that as cargo traffic develops, air express will be divorced from passenger operations, especially on transcontinental trunk lines, and will need separate fields.

The automobile, increasing in numbers at the airport, will very likely remain the most mobile method of transportation to and from the airport and will require adequate circulation and parking facilities. Parking areas may require subdivision or segregation as to user; moreover, if parking space is limited, other solutions to the transportation problem (buses, trams, surface cars, subways) should be analyzed and, if necessary, incorporated into the local transportation system.

As the number of airport employees increases with the general development, their problems will become correspondingly magnified. Efficient terminal operation demands a constant minimum number of personnel on hand at all times. They will want the usual services (food, refreshment, toilet facilities, locker rooms, rest rooms) separate in many instances from those of the airline passenger. With respect to office space, there is every reason to recommend that the administrative function as represented by offices (*not* airport control functions) be removed as a wing or even a distinct building away from the aircraft ramp positions; thus providing for expansion, reducing noise created by aircraft, and eliminating the confusion which results when administration and passenger and spectator services are combined. All these point to a definite need for flexibility, and for planning for future expansion, in the design of passenger terminal buildings.

Efficient Operation of Air Terminals

The great extent of operational activities in the new air terminals will require just as efficient an operational setup as was previously achieved by personal contact systems. Use of public address systems, intercommunication systems, private lines, pneumatic tubes, conveyor belt systems, elevators, lifts, escalators, television, etc., make this possible. These will be the solutions to the handling of mail, express, baggage, weather reports, flight plans, orders, and



Size of Typical Class 1-2-3-4-5 Airports

Diagrams above and at top of page 45 are from the Civil Aeronautics Authority. The above diagrams and the published proposal for New York's gigantic Idlewild Airport, across page, are based on rectangular and diagonal runways laid out in accordance with prevailing winds.

Takeoff Distances to Clear 50-foot Obstacle

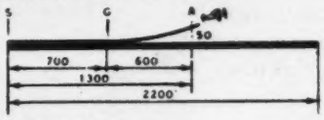
SG—IS DISTANCE FROM START TO POINT OF TAKE-OFF

SA—IS DISTANCE FROM START TO CLEAR 50 FT. . . . ALL ENGINES OPERATING

SB—IS DISTANCE FROM START TO CLEAR 50 FT. . . . ONE ENGINE INOPERATIVE AT POINT G

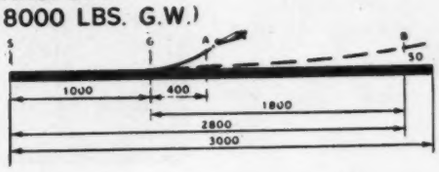
LIGHT AIRPLANE
(APPROX. 2000 LBS. G.W.)

CLASS I AIRPORT
2200 FT. RUNWAY



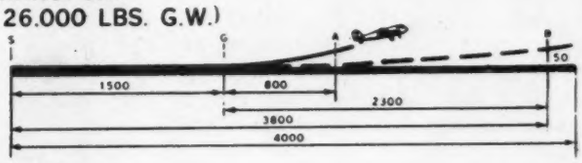
SMALL TRANSPORT
(APPROX. 8000 LBS. G.W.)

CLASS II AIRPORT
3000 FT. RUNWAY



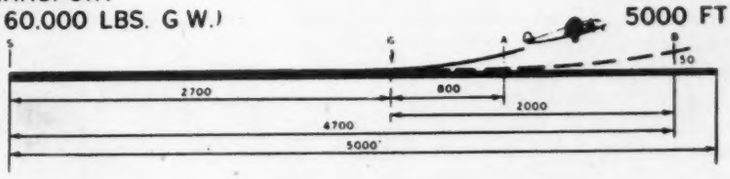
MEDIUM TRANSPORT
(APPROX. 26.000 LBS. G.W.)

CLASS III AIRPORT
4000 FT. RUNWAY



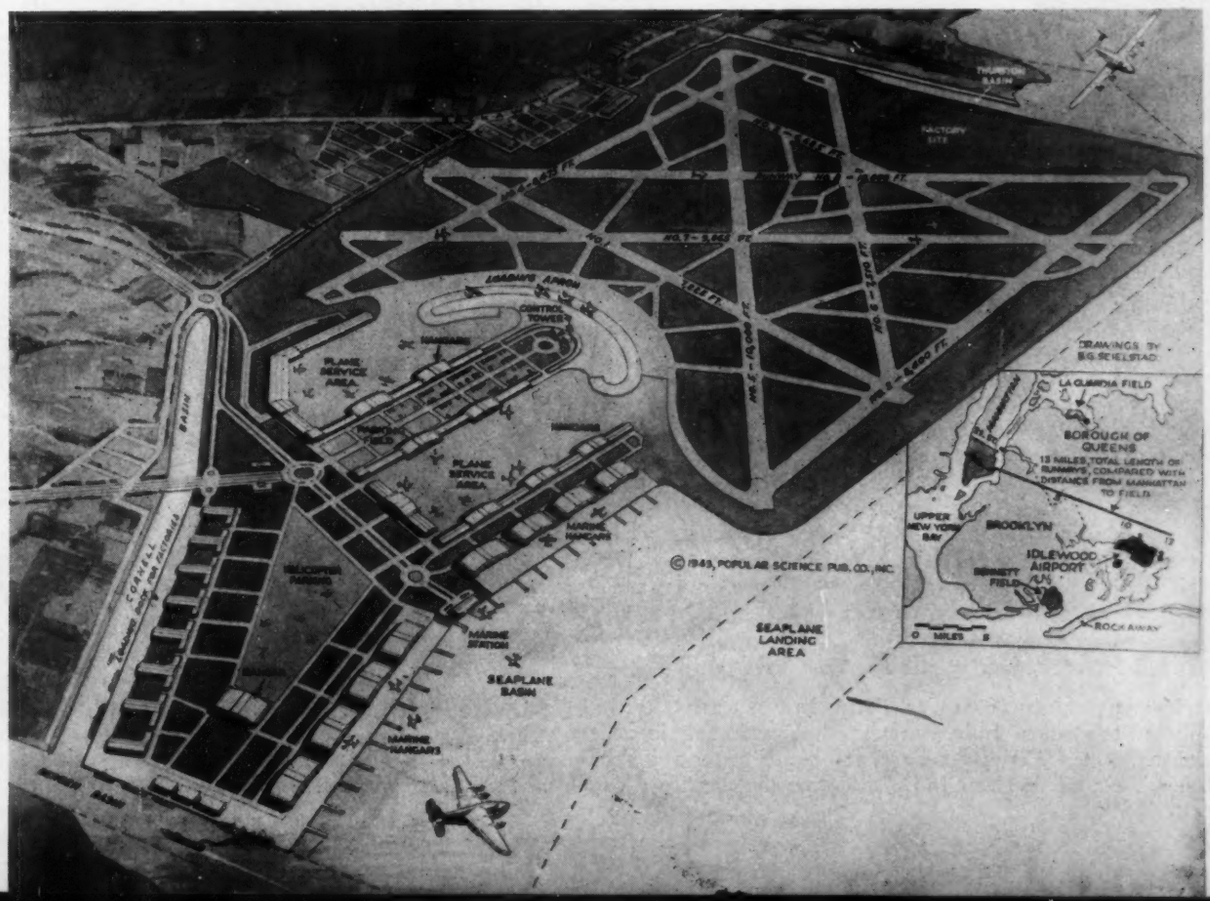
LARGE TRANSPORT
(APPROX. 60.000 LBS. G.W.)

CLASS IV AIRPORT
5000 FT RUNWAY



Proposals for Idlewild Airport, New York City

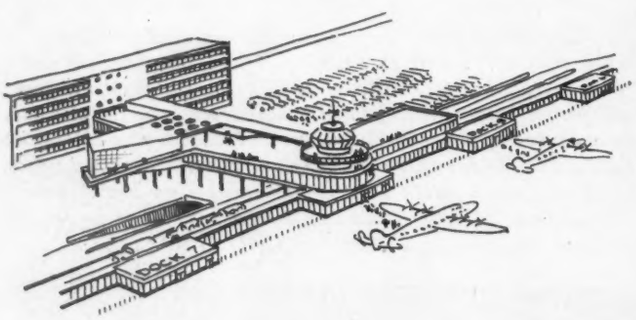
The scheme for New York's future transcontinental and transoceanic air terminal, at Idlewild on Long Island, may be superseded by a more advanced design. Below is the published scheme, the familiar rectangle-and-diagonal layout greatly enlarged to provide 13 miles of runways, some of them 10,000 ft. long, 200 ft. wide. Recently American Aviation *revealed that at least one airline questions this layout, proposing instead a "tangent runway" pattern, which is pinwheel-like, with terminal building and ramps forming the hub, and runways, the tangential "spokes." Landings, made with 45° of wind direction, point toward the hub; takeoffs are made similarly but away from the center. Taxi distance is much reduced. Access to central buildings is by tunnel under runways. Studies reportedly show that the rectangular scheme will permit only 80 takeoffs and landings per hour (at this rate, estimates indicate, New York will need 3 Idlewilds plus LaGuardia Field within 9 years after the war) while a single tangential layout at Idlewild could permit 375 plane movements per hour. Among other claimed advantages this would reduce land area needed for the total volume of air traffic from 12,834 to 5612 acres.*



tickets, from centralized offices to decentralized loading stations, ports, docks or ramps.

Based upon this kind of analysis, Northwest Airlines has been studying the passenger terminal problem and is in the process of designing several theoretically ideal terminals. Plans have been conceived with a view to having answers ready for the questions that have and will come from municipalities when they plan new passenger terminals. The position of the airlines as advisors to the municipalities they serve is a serious one inasmuch as both must plan their air age future together. What either does will have a decided effect upon the others; future efforts must be even more cooperative than they have been in the past.

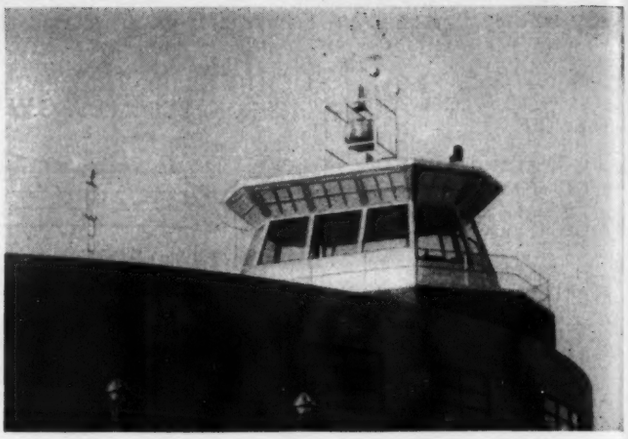
The important principle upon which one terminal solution was based may be stated as follows. It has been estimated that in some cities 80 to 90 percent of all airline tickets are purchased at downtown ticket offices, because the airport ticket office is remote. The airport passenger is presumably interested in buying *airline time*; such time should be carried over into ground operations as far as possible. It should not take the passenger an hour to reach the airport, nor should we have to be there half an hour ahead of scheduled departure for a flight of perhaps only an hour's duration. Travel time to the airport is regulated principally by distance and existing speed laws, so that once an airport site is selected this factor is fixed. However, the passenger who arrives at the airport by private car, cab, airline limousine, or bus is primarily interested in a direct effortless transfer from his automotive conveyance through the airport barrier to the plane, with his ticket being checked and his baggage cared for en route. The reverse process is true for "terminating" passengers. Only those who are changing planes or are held over at the airport will make the most of the services provided in the terminal building.



The solution referred to provides a number of individual docks or passenger stations, connected by covered passageways and underground service tunnels for utilities, mail, and express. These docks are flexible entities in that they can be added one after another as the demand arises. They are centered so as to provide between them the minimum space required for aircraft to manoeuver into ramp position. They are flexible in that they can be respaced if larger aircraft are operated, or their waiting rooms and services can be expanded to meet the needs of aircraft with greater passenger capacity. Several docks can be set aside for international traffic, and additional facilities for customs and immigration can be provided. If time tables are accurately maintained there is no reason why every hour, on the hour, a plane should not leave from Dock 5 for Seattle just as the westbound express always is to be found on Track 5 at 6 A.M. Furthermore, the entire terminal could be operated by the municipality and the airlines as a joint project, or separate docks could be rented to separate airlines in proportion to their schedule of operations. This latter system would allow the airlines exterior advertising by means of controlled signs on each dock.

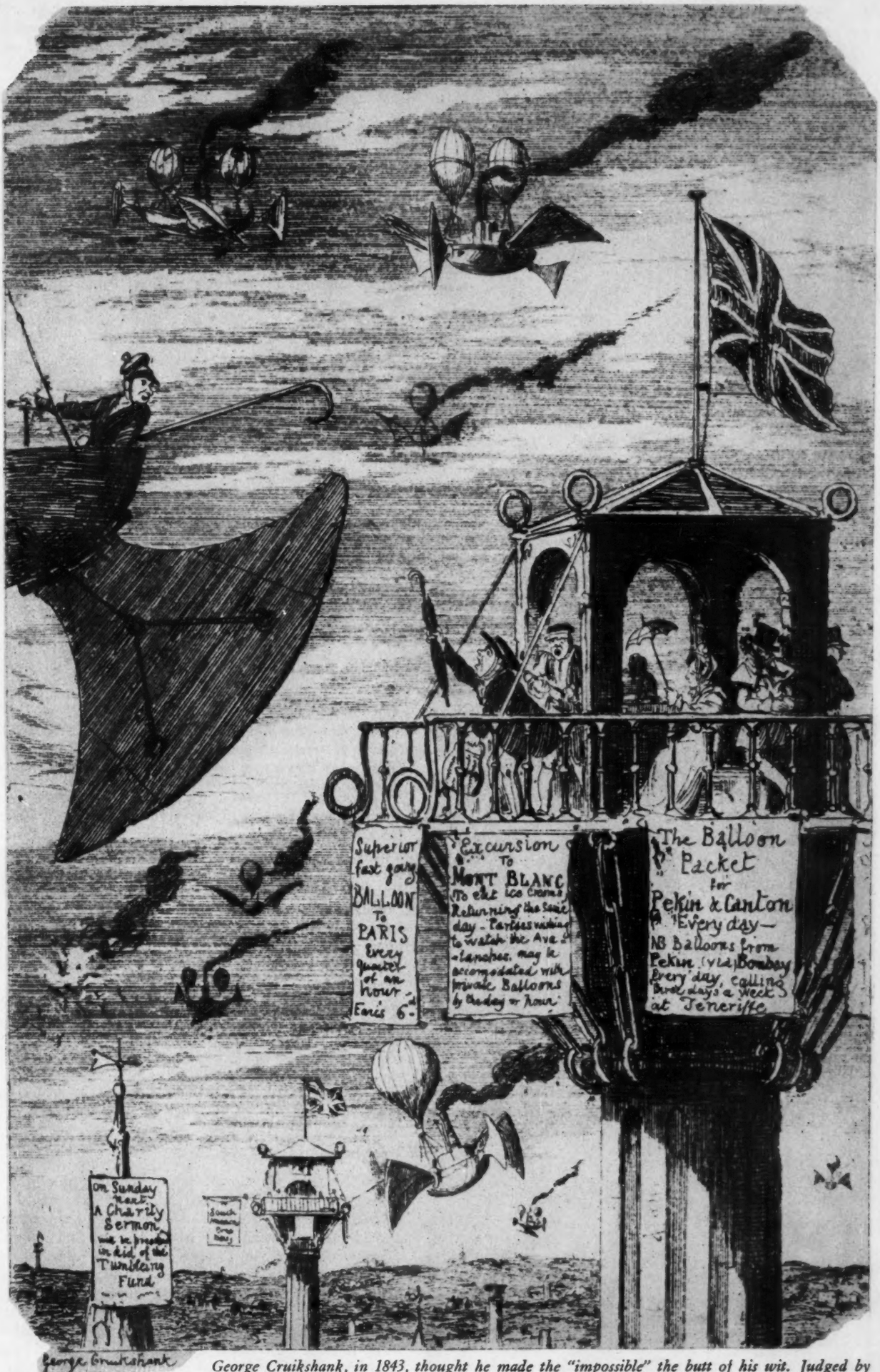
Weather Protection at the Air Terminal

Still more problems of terminal design have not as yet reached an ultimate solution. In inclement weather, particularly in colder climates, protected en-planeing and de-planeing of passengers and baggage is a big problem. In designing the aforementioned dock

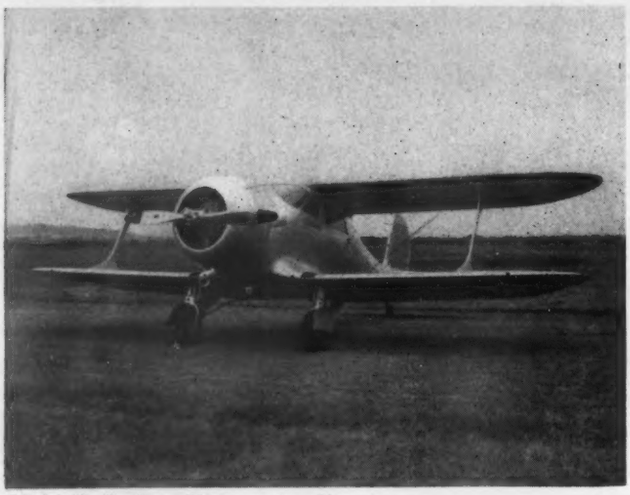


Official U. S. Navy Photo

Control Towers
Top to bottom; La Guardia Field, New York; a military airport; El Paso, Texas, commercial airport; a Naval Air Station.


Superior fast going BALLOON To PARIS Every quarter of an hour - Fare 6-
Excursion To MONT BLANC
The Balloon Packet for Pekin & Canton Every day—
On Sunday next A Charity Sermon
George Cruikshank

George Cruikshank, in 1843, thought he made the "impossible" the butt of his wit. Judged by military developments today, his predictions weren't very far-fetched. (Drawing from Institute of Aeronautical Science.)

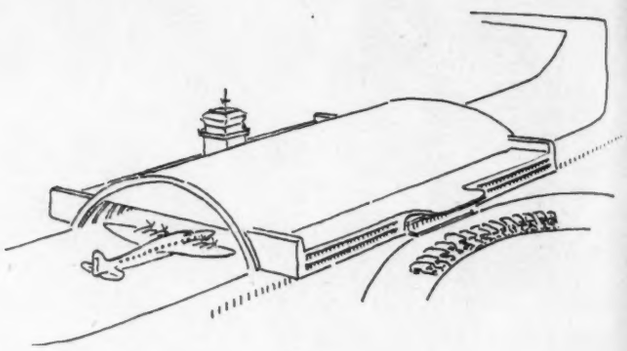


Official U. S. Navy Photo, courtesy Skyways

Above, a Beechcraft Transport, typical of the smaller plane which may serve feeder lines and the wealthier private fliers. Below, the much-publicized helicopter, projected by some as the future air-flivver, everyman's plane, etc.

system, telescoping passageways from dock to plane were envisioned, but these were not regarded as final. Mail and express in such a dock system could be handled underground, with lifts up to planes on ramps. This system will eliminate the enormous cost of attempting to enclose the entire plane, a difficult problem because aircraft are still increasing in size. However, if aircraft become larger, some ships may load from second- or third-story levels, a scheme which requires bridges, cantilevered platforms, or special nose docks for head-on loading. Such planes may revolutionize air terminal design by distributing different kinds of traffic to different levels: mail, express, and baggage at ground level, passengers and friends on an intermediate level, spectators on the top level.

Another solution to loading under cover is the use of tunnel shelters much like some of the wood, laminated-arch hangars now in use. Such shelters would be open at both ends and would "process" planes through in train fashion. In cold climates, quick-operating doors could be provided at each end.



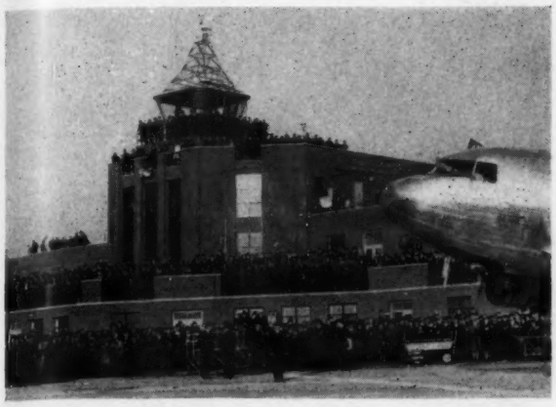
This type of passenger station is suitable for line station operations only. It would not be desirable for a terminal, where the lead plane could delay other flights. Such facilities, though, may be suitable for cargo terminals where maintenance of accurate time tables is not imperative, but saving perishable cargo from damage is important.

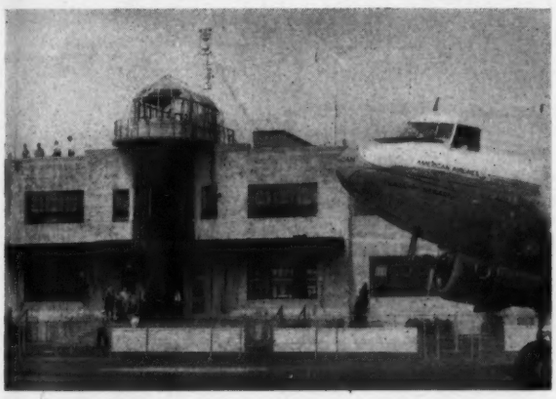
Nose loading of passenger or cargo ships makes it necessary to use cantilevered roofs over nose docks. This method, unless the design incorporates hangar facilities, appears to be too costly and clumsy an expedient except for warm climates, due to the difficulties involved if anything more than the nose of the ship is enclosed. Northwest Airlines has already successfully used "nose hangars" for aircraft repair and maintenance work, and for removing engine and propellers for overhaul in very cold temperatures. In these cases, aircraft remain in the hangars for a long time. There is also the possibility of approaching aircraft underground, utilizing lifts to emplane or deplane passengers. This is excellent in theory, in that it keeps passengers off the ramp areas, but might keep a crew of men busy operating the lifts to gratify passengers' whims. Cargo which has no mind of its own could be more easily and expediently handled in this manner. Elevators may be unsatisfactory because only limited amounts of passengers can be handled per trip, leaving others waiting.

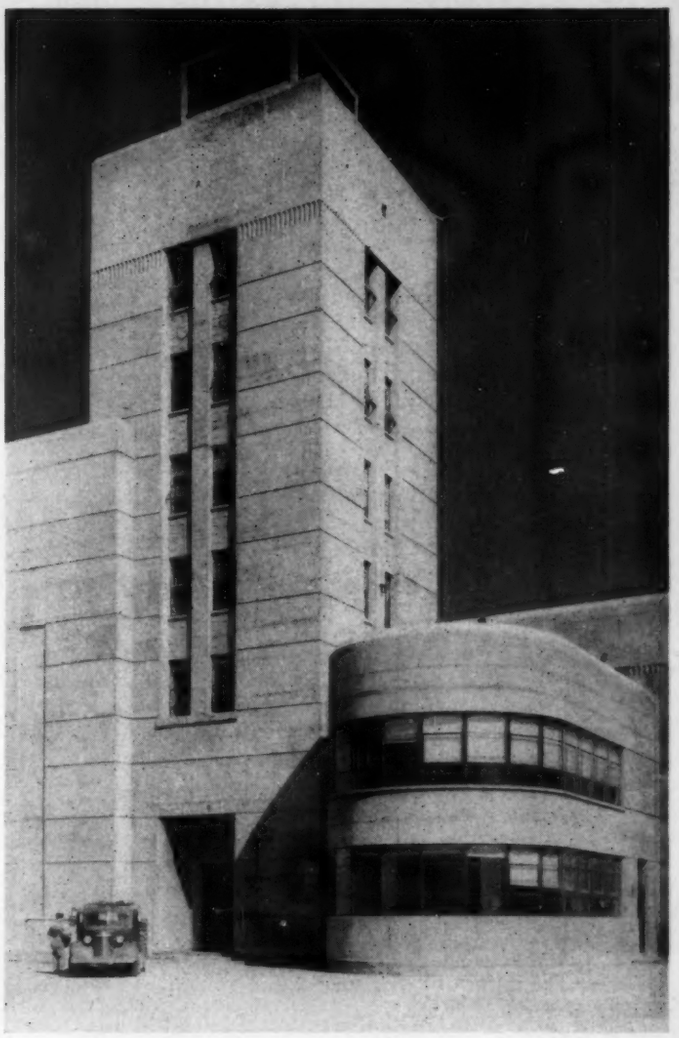
Problems In Handling Air Cargo

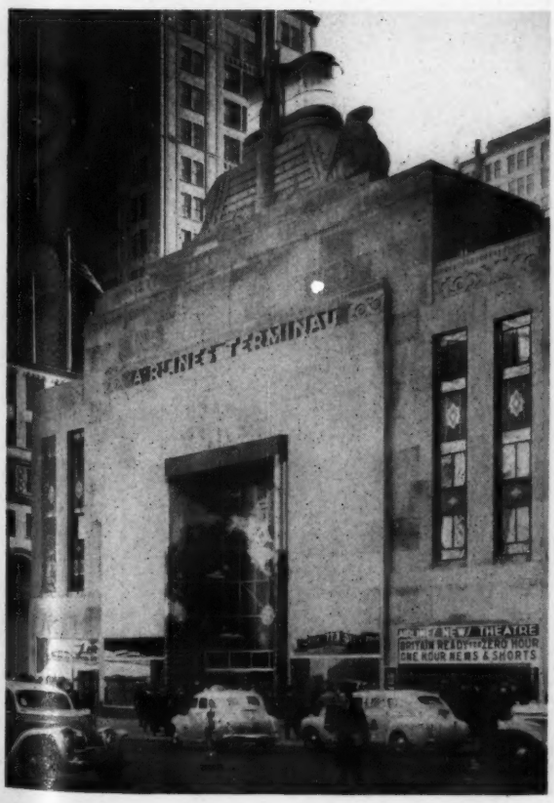
Cargo handling via aircraft presents a multitude of problems, from education of shippers to design of warehouses, docks, and cargo handling equipment and systems. This subject has been treated in great detail by Karl O. Larson, Chief Engineer for Northwest Airlines, in a paper entitled "Terminal Handling of Air Cargo," which was presented in Chicago on December 9, 1942, at a meeting of the Society of Automotive Engineers. It is sufficient to say that here again the design of the airplane itself, and its method of loading (through top hatches, side doors, nose, or up through the bottom) will in a great measure determine the type of handling equipment to be used, and will affect the design of related structures. It is hoped that ideal solutions will be

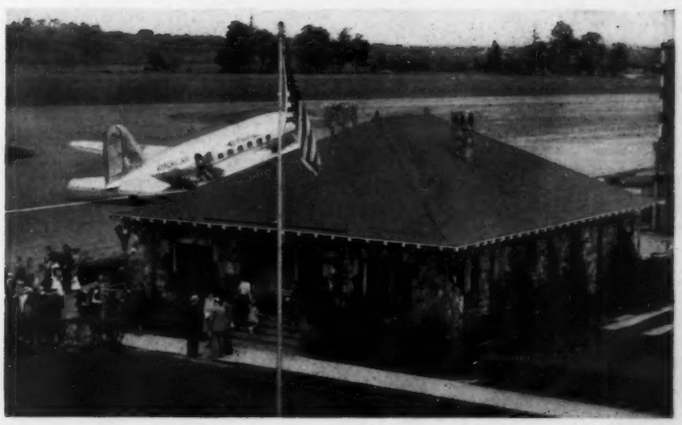
Administration Buildings











Upper left, administration buildings at Baltimore and Newark Airports. Top right, administration and control unit at a military field. Left, Airlines Terminal, on Forty Second Street in New York City, best known in-city terminal building. Directly above, Syracuse Airport building suggests the possible country-club airport of the future. These indicate the range of building types now in existence; few of them are really adequate. It is up to designers to make them function according to the demands of the planes they serve.

found more quickly for cargo terminals where there exists no predetermined pattern to mislead designers, than for passenger terminals.

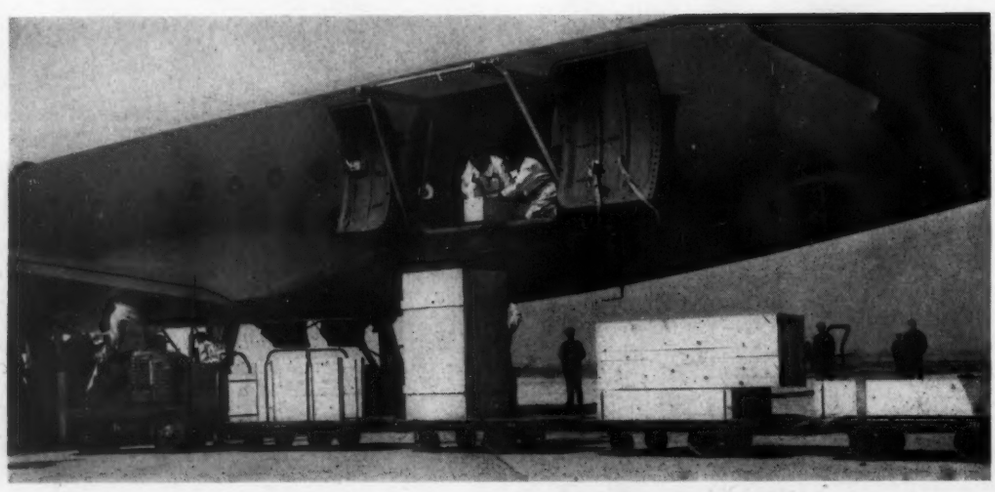
Design of hangars and adjacent shops is another pertinent problem, intricately involved with the planning of an airport. Completely enclosed hangars are a necessity in cold climates; some shelter is necessary for ground crews and mechanics in all climates. With the physical size of aircraft still increasing, there exists an unpublicized competition between structural engineers and aircraft designers, defined as "bigger plane versus bigger hangar." Thoughts differ on hangar design but here again a few factors are outstanding. The numbers of commercial aircraft are likely to be such that it will be financially impossible to provide complete hangar coverage for all ships not in operation. Aircraft now designed to fly through all kinds of weather can be parked outdoors, in those same kinds of weather, without adverse results.

The analysis of aircraft hangar design problems, as to basic types and plans, structural types and variations, as well as a survey of the advantages and limitations of each type, is a task as complex and difficult as that of terminal design, if not more lengthy. Even greater complexities are encountered in the design of specialized overhaul and repair shops necessary for the maintenance of a commercial airline. Functions and requirements of such shops are complex to the point of requiring specialists for their design. Hangar and shop layout for a major overhaul base is another complex problem, comparable to designing an industrial plant. Very important is the external relation of such a base to the airport plan as a whole. As has been previously pointed out, there are usually both a premium and limitations on buildable area immediately adjacent to ramps and taxiways. It is therefore rapidly becoming obvious that only small routine service hangars and facilities can be located near the terminal building. This gives planning and location of major overhaul bases a new aspect.

Independent Power Plants for Municipal Airports

A service that seems to have been overlooked at many municipal airports is establishment of a central power plant for heating all airport buildings. This could be a source of municipal revenue and would limit chimney obstructions to one adjacent location. Such a power plant could provide the essential auxiliary power service necessary in case of a power failure by the normal supplier. Failure of radio facilities or field lighting is a dangerous situation, especially when weather conditions are adverse.

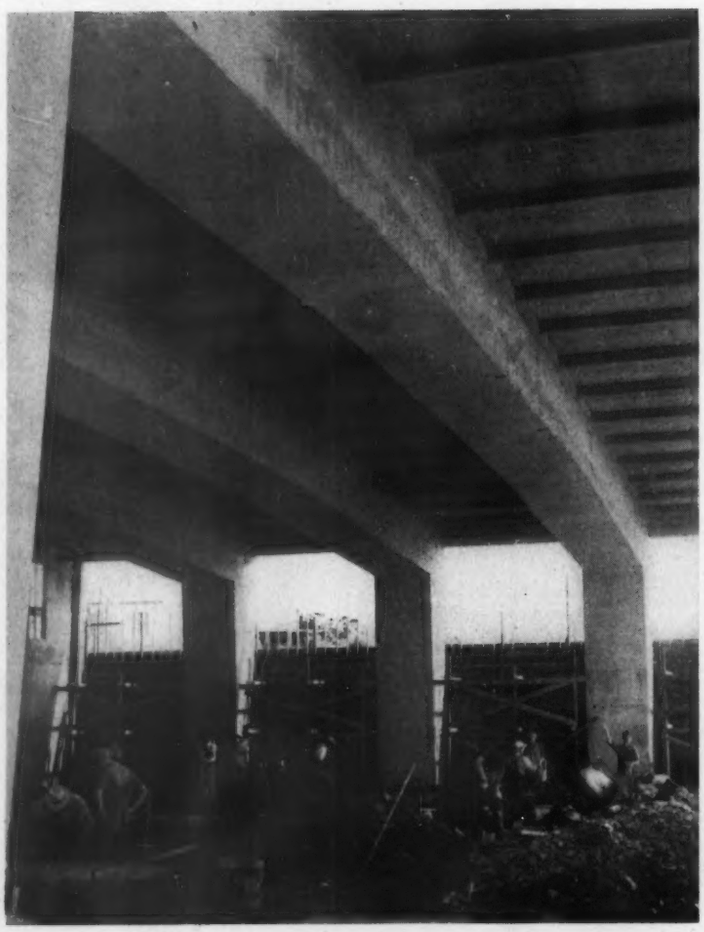
This discussion is in essence but a mere skimming over the surface, an outline of many items requiring deeper study and analysis. It has dealt mainly with some of the architectural and airport problems of commercial airline operation. The effect of aviation upon architectural practices and methods is still another story, for aviation has helped to develop the use of plastics, the light metals, stressed skin construction, and many other items that will not remain the sole property of aviation when the present conflict is over.



Handling of cargo, passengers, sight-seers, express, and mail demand a thorough integration of different kinds of traffic facilities and equipment. Indeed, expediting various kinds of payloads is the crucial problem in terminal building design; to separate the different kinds of users from one another and from the merely curious requires all the ingenuity the planner can command. At left, bottom, freight is lifted into a cargo plane on booms designed as part of the plane. Trucks with elevator bodies are another approach. At left, above, are two suggestions for loading future aerial mammoths: Center, nose-loading of cargo, which Mr. Meisch suggests might further benefit from installation of some sort of canopy which would provide shelter from weather; and, top, a passenger gangplank. On this page, above, two views of La Guardia Field terminal building, showing automobile entrance over the mail and express entrance; and an elevated walkway, one means of segregating traffic. At right, automobile entrance at a commercial airport.

Types of Hangar Buildings

Official U. S. Navy Photo



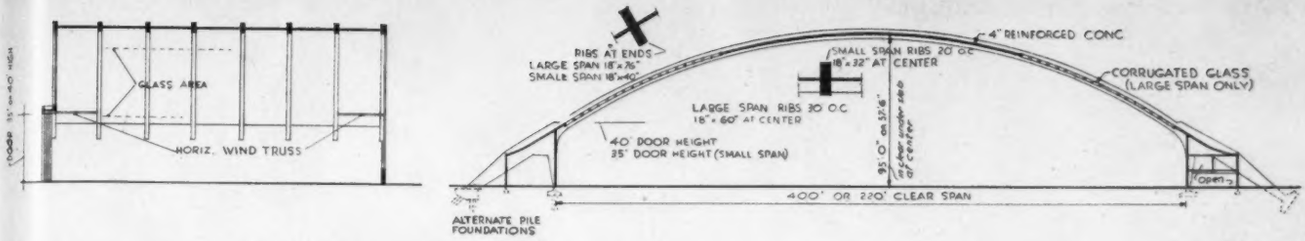
Strictly speaking, it is difficult to segregate different kinds of hangar buildings by "types", except as some house lighter-than-air ships and others heavier-than-air planes. In the former case, the necessity for economizing on structure and materials (a war need now, potentially a peacetime necessity to reduce costs) has led to interesting design solutions. Most of the familiar examples of this kind have been executed in concrete or wood; when steel is available, it should be at least equally suitable. Indeed, one steel-framed example is shown on page 55.

Above is a Naval hangar of thin-shell concrete construction, with exterior arch ribs (Architecturally, this is reminiscent of the famous hangar at Orleans, France.) Here, the span is 294 ft., the rise, 84 feet. Roberts and Schaefer were the consulting engineers, Joe H. Lapish was the associate architect.

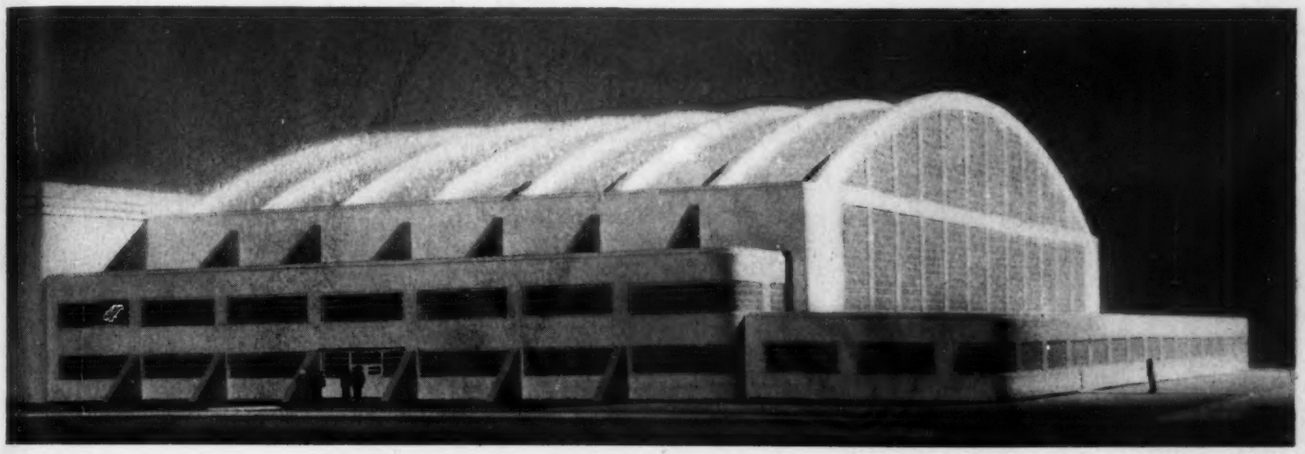
At left is a National Guard hangar in Iowa, with a concrete roof slab spanning 150 ft., supported by hollow box-girders of reinforced concrete. The roof slab is 3 inches thick. William N. Nielson was the architect and engineer; Les Forsyth was the structural engineer.

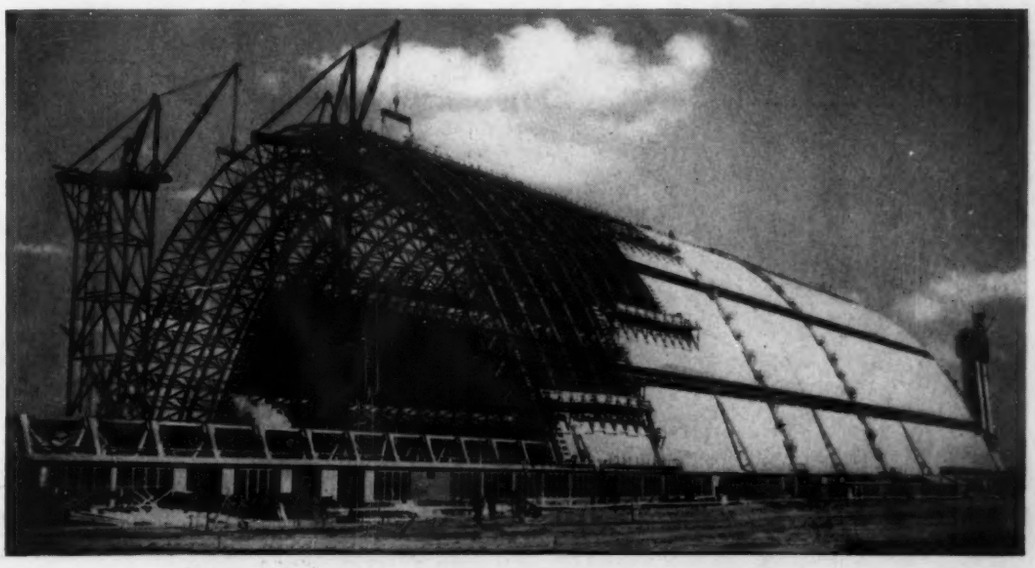
On the facing page, in the center, is a typical commercial hangar for United Air Lines at the Denver Airport. It is chiefly of metal construction, and has an office building annex at the rear. Albert Kahn Associated Architects and Engineers, Inc.

At the bottom of page 53 is a huge Naval dirigible hangar constructed of wood. Its design and construction were made possible by the development of timber connectors. To assure permanence, the wood is pressure-treated against decay or attack by insects.



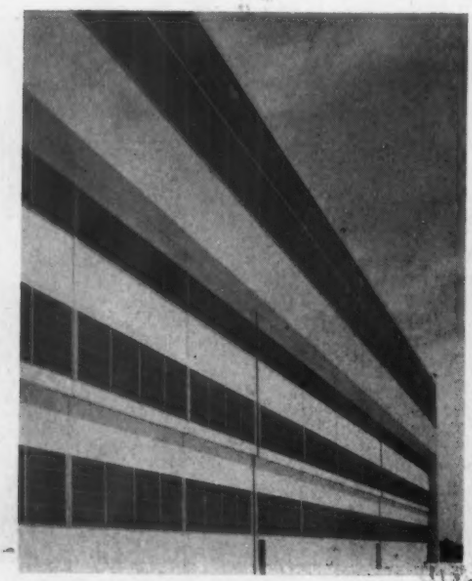
Above, sections; below, photograph of model, of a type of concrete hangar designed by Charles S. Whitney, consulting engineer, of Milwaukee, Wis. It consists of a 4-inch-thick reinforced concrete shell stiffened by integrally cast ribs spaced 20 to 30 feet on centers. Part of the roof slab may be replaced with structural glass when the size of the hangar is so great that additional natural light is advisable. Even longer spans are feasible.

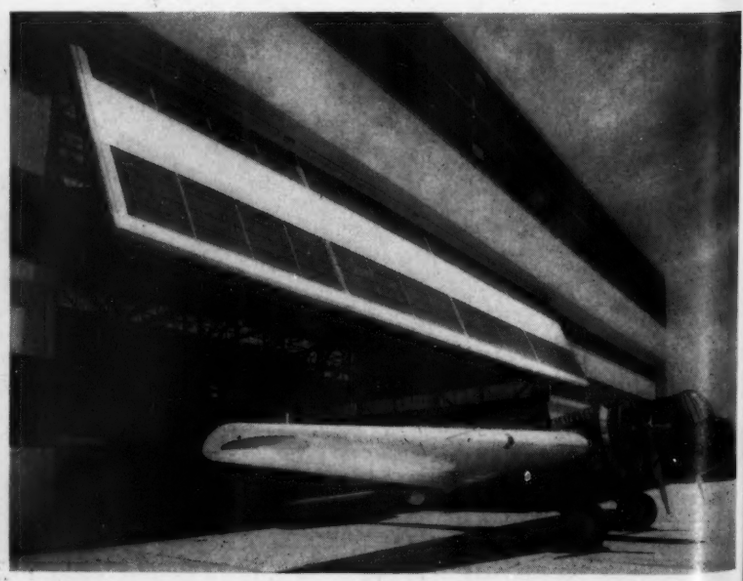


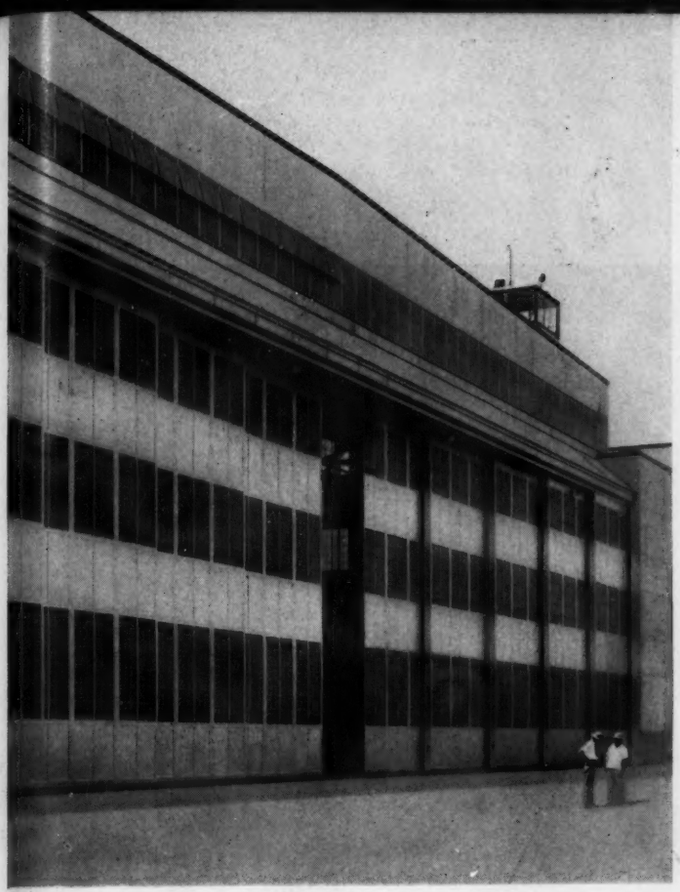


Hangar Doors

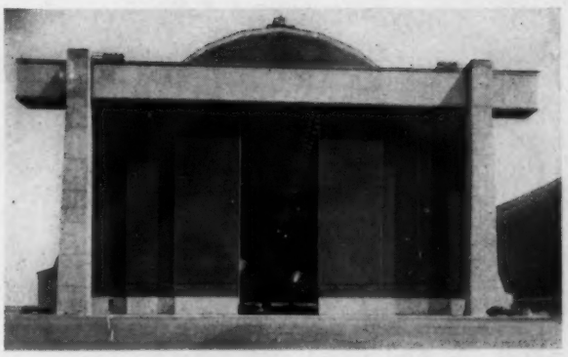
For the average case, there are two principal types of hangar doors: canopy and horizontal sliding types. Advantages are claimed for both kinds; the designer has to select the one which meets all his requirements best. Above is an excellent example of the canopy door, demonstrating how the door, when open, offers additional weather protection at the hangar entrance, and how the entire opening, jamb-to-jamb, is cleared for use. Below is a double canopy door, shown in two views, at the Glenn L. Martin plant, designed by Albert Kahn Associated Architects and Engineers, Inc. Here the bottom leaf slides up behind the upper, and both then lift together.

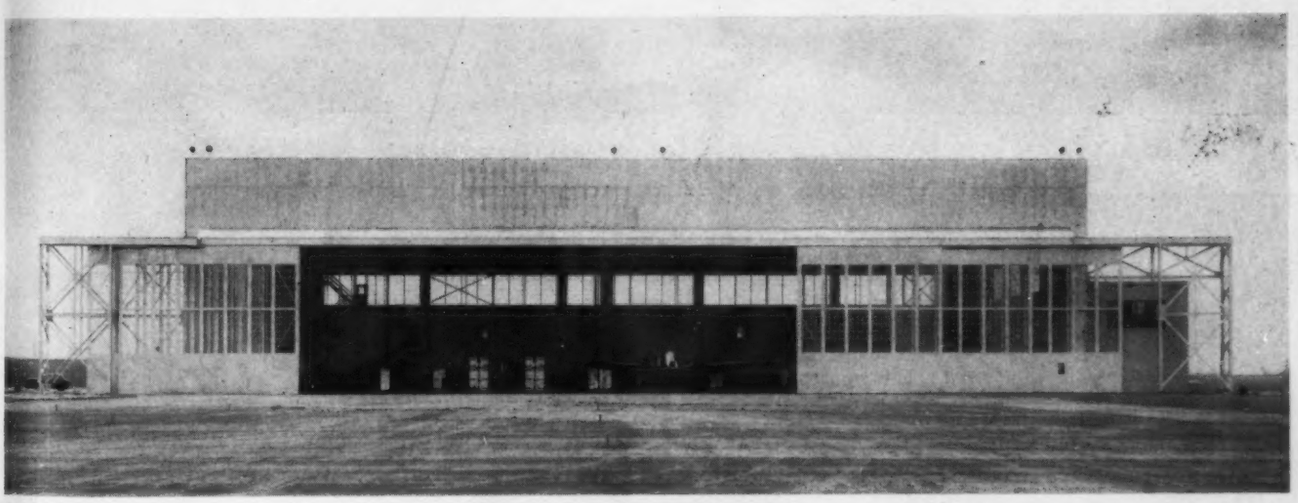




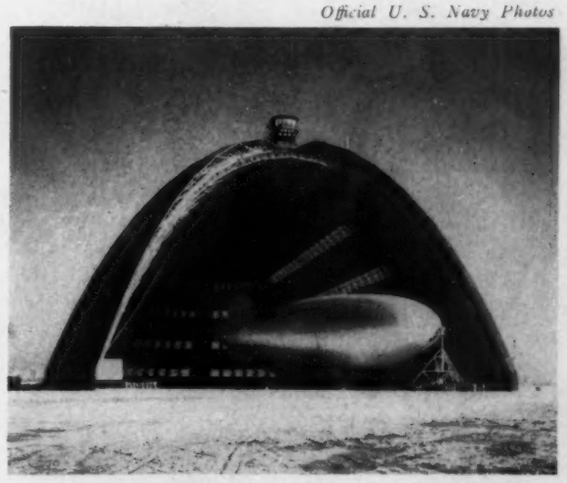


Various types of sliding hangar doors appear on this page. At left is a motor-driven type for a 250 by 48-ft. opening. Leaves move at different rates of speed so that all arrive simultaneously at open or closed position. Below is a similar door for a Navy lighter-than-air hangar. Difference between the two is that in one case leaves are housed within the structure (which prevents use of the full width of the hangar as an openable door) and in the other, leaves are housed outside the structure (and entire wall width can become clear opening.)



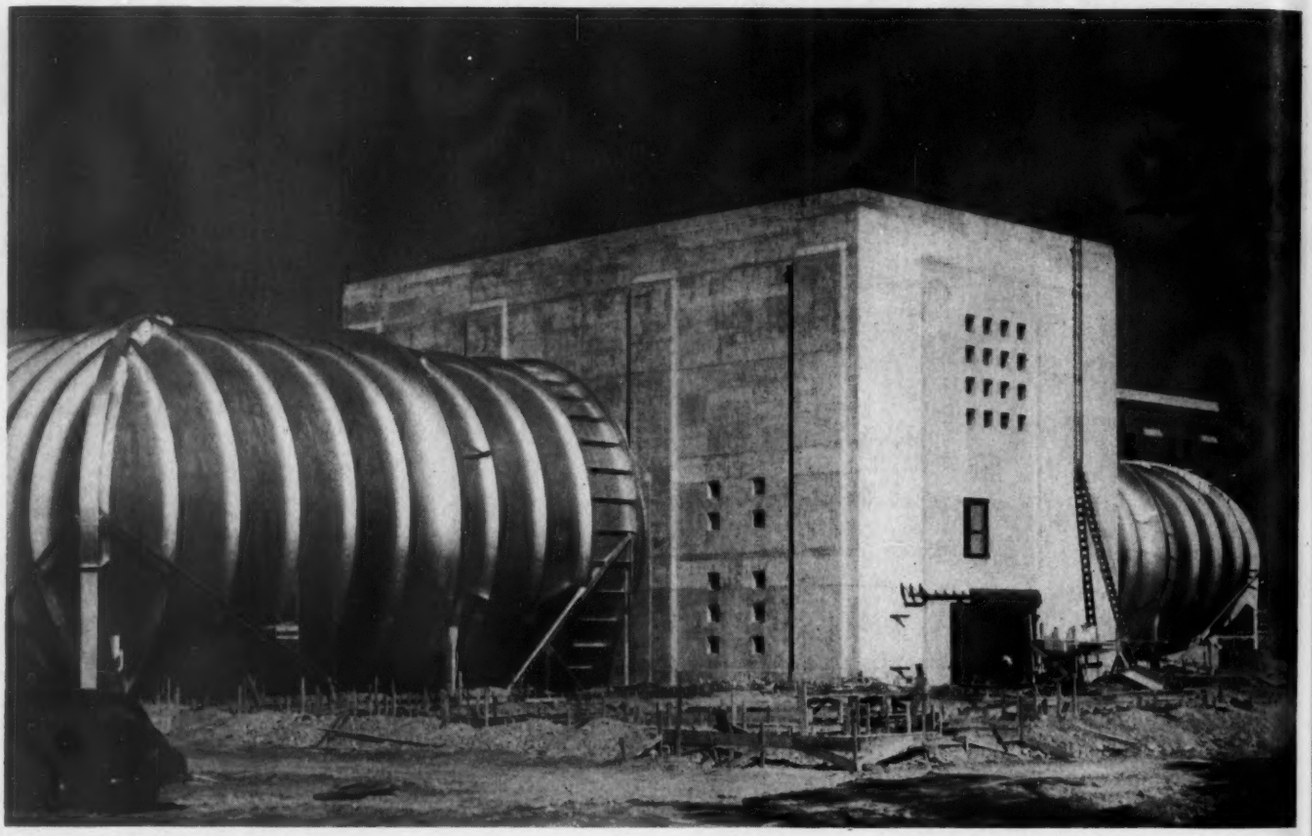


Official U. S. Navy Photos



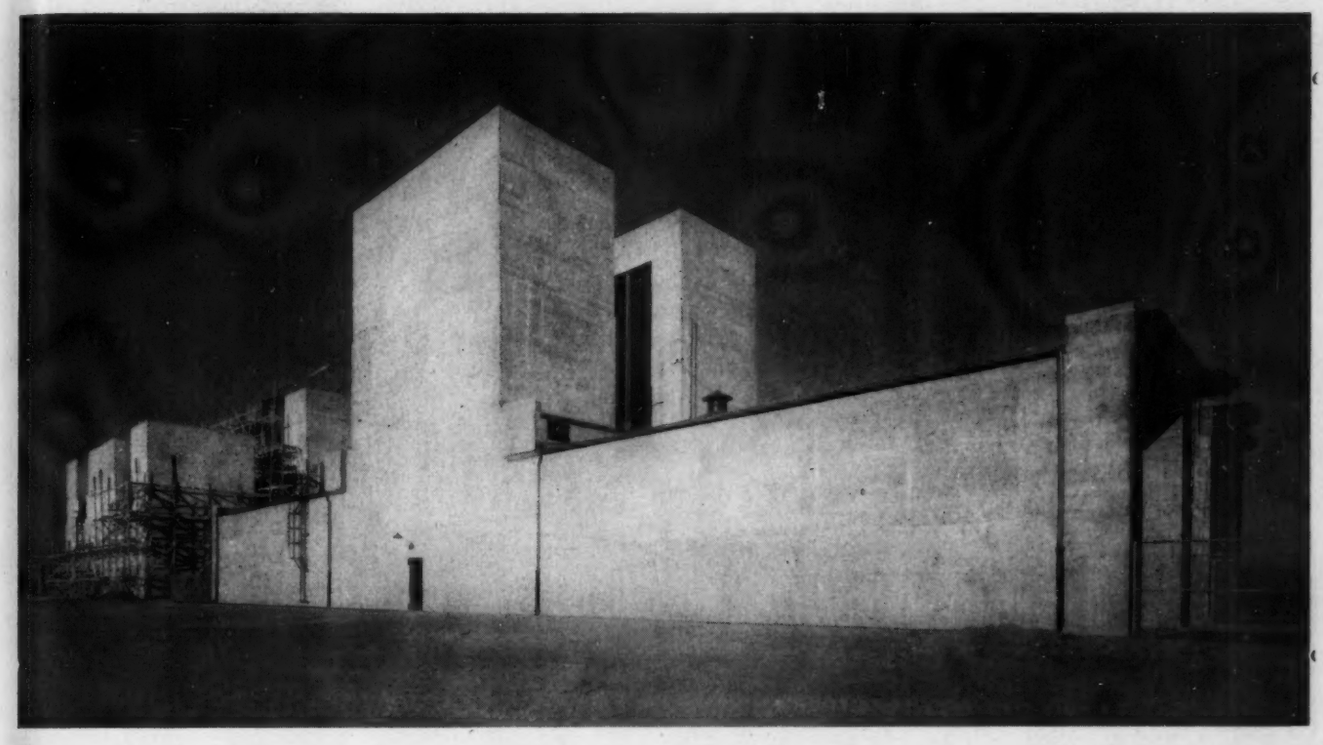
Above is the United Air Lines hangar at the Denver, Colorado, Airport, designed by Albert Kahn Associated Architects and Engineers, Inc. It is another development of principles demonstrated in the photograph at top right.

The lighter-than-air hangar at the immediate right is equipped with "orange-peel" doors—basically a horizontal sliding door, but with leaves pivoted at the top center.



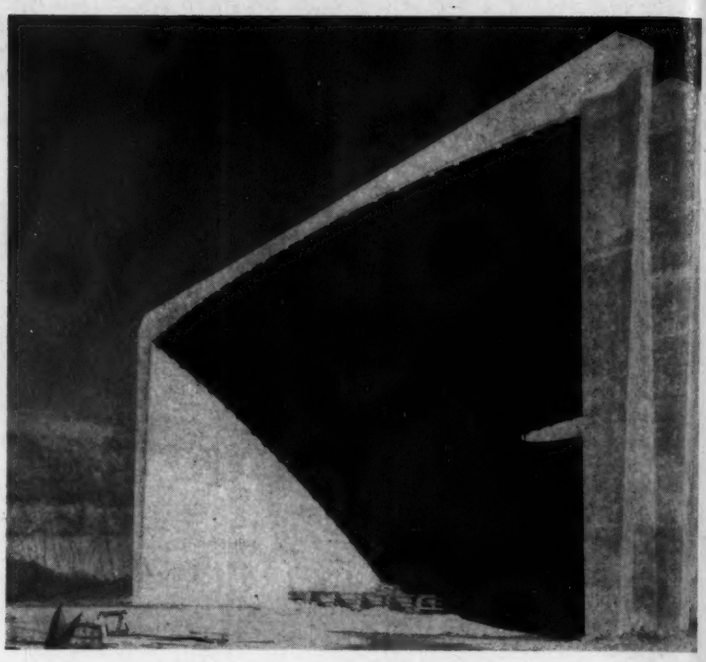
Top of page, an early wind tunnel at an Army air field, designed by the Constructing Quartermaster Corps. Lower picture shows the cold chamber for a wind tunnel; here are included a large testing area, office and control room space, and a refrigerating unit. This unit was designed by J. Gordon Turnbull, Inc., and Sverdrup and Parcel, consulting engineers. (Official U. S. Army Air Corps Photos.)

On this page are two groups of engine test blocks. In general, this type of structure requires one or more test cells, each with an exhaust stack equipped with baffles or otherwise treated to reduce the volume of escaping sound; and control rooms from which motors can be safely observed in operation. Cells may be paired or arranged around a single stack for economy. The steel roll-up doors in the upper example are noteworthy. Both these units were designed for United Aircraft Corp. by Albert Kahn Associated Architects and Engineers, Inc. Details of similar units were presented in an earlier issue of NEW PENCIL POINTS *(August, 1943, pages 75-76.)*



Subsidiary Buildings for War Indicate Peacetime Requirements

Buildings on these two pages are all at large Army and Navy fields; though not all will have their counterparts in a peacetime establishment, they embody some design and construction principles which will prove valuable. The firing-range cover, at right, was designed by the U. S. Engineers for an armament laboratory group. It is a rigid-frame concrete structure, with ribs on the outside to preserve a required smooth interior surface. Below is an Army test laboratory group consisting of hangars, tower and operations unit, and engineering shops. It was designed by the U. S. Engineers, with Roberts and Schaefer as consultants on the shops building, of which an interior is shown at the right.

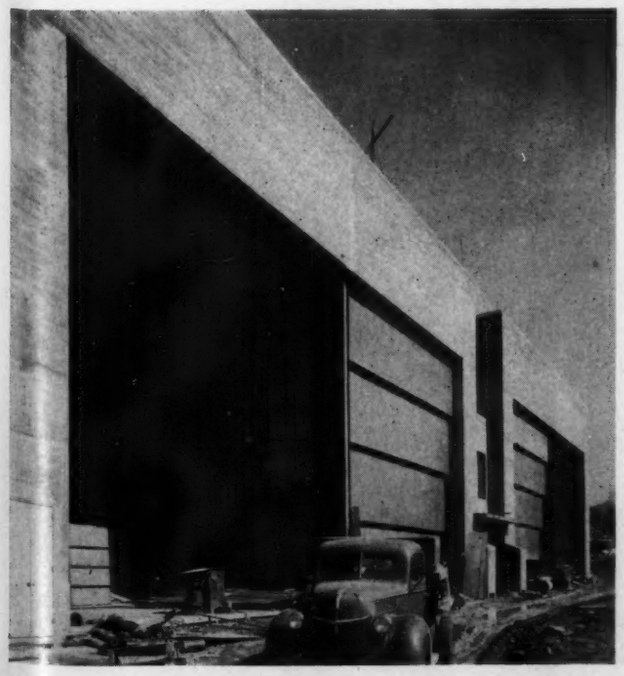


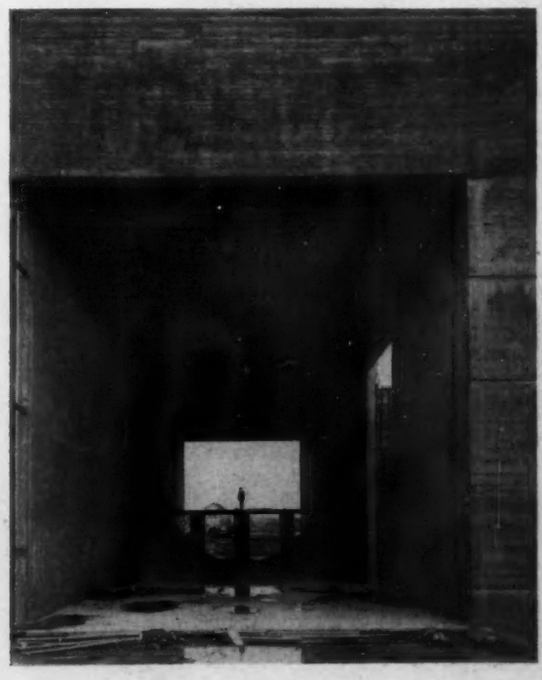
Below is another experimental group, the propulsion laboratory, at an Army field. There are a one story laboratory and two test cells with parabolic ends. Cell control rooms are of lightweight concrete masonry. Rial T. Parrish was architect for this group. All structures on this page are of concrete (official U. S. Air Corps photos).

Official U. S. Navy Photo.

Top of page, the municipally-owned Chicago and Southern Airlines hanger and office building. Leased to the airline, the structures were designed by the engineering staff, Public Works Department, Memphis, Tennessee. It is an example of a "service" airport for a large metropolitan center. Above is huge assembly and repair shop of a Southern Naval air station; architects, Robert & Co.

Below, views of U. S. Army field propellor torque stands. Essentially they are enormous Venturi sections grouped in 2-cell units. Problems were need for vibration-protection for control room, for smooth cell-interiors, and an interior shape changing from a 45-ft. square to a 42-ft. circle, and back to the square again. All-concrete structure. Test-blocks on independent foundations, to solid rock, pass through Venturi structure, are cushioned with cork, mastic, and sand. An exhaust tunnel runs under the full length of the stands. U. S. Army Engineers designed the units. (Official U. S. Army Air Corps photos.)



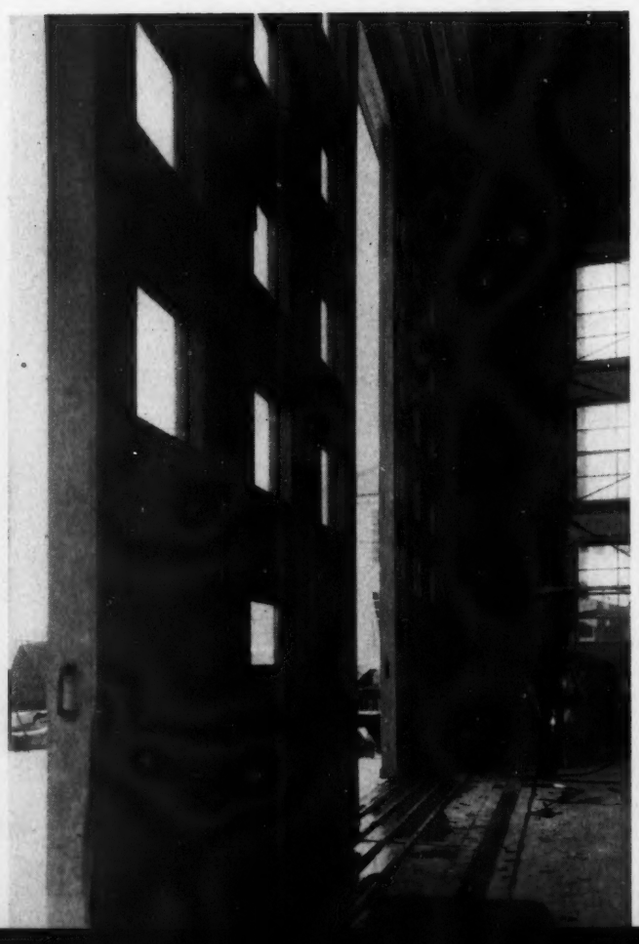


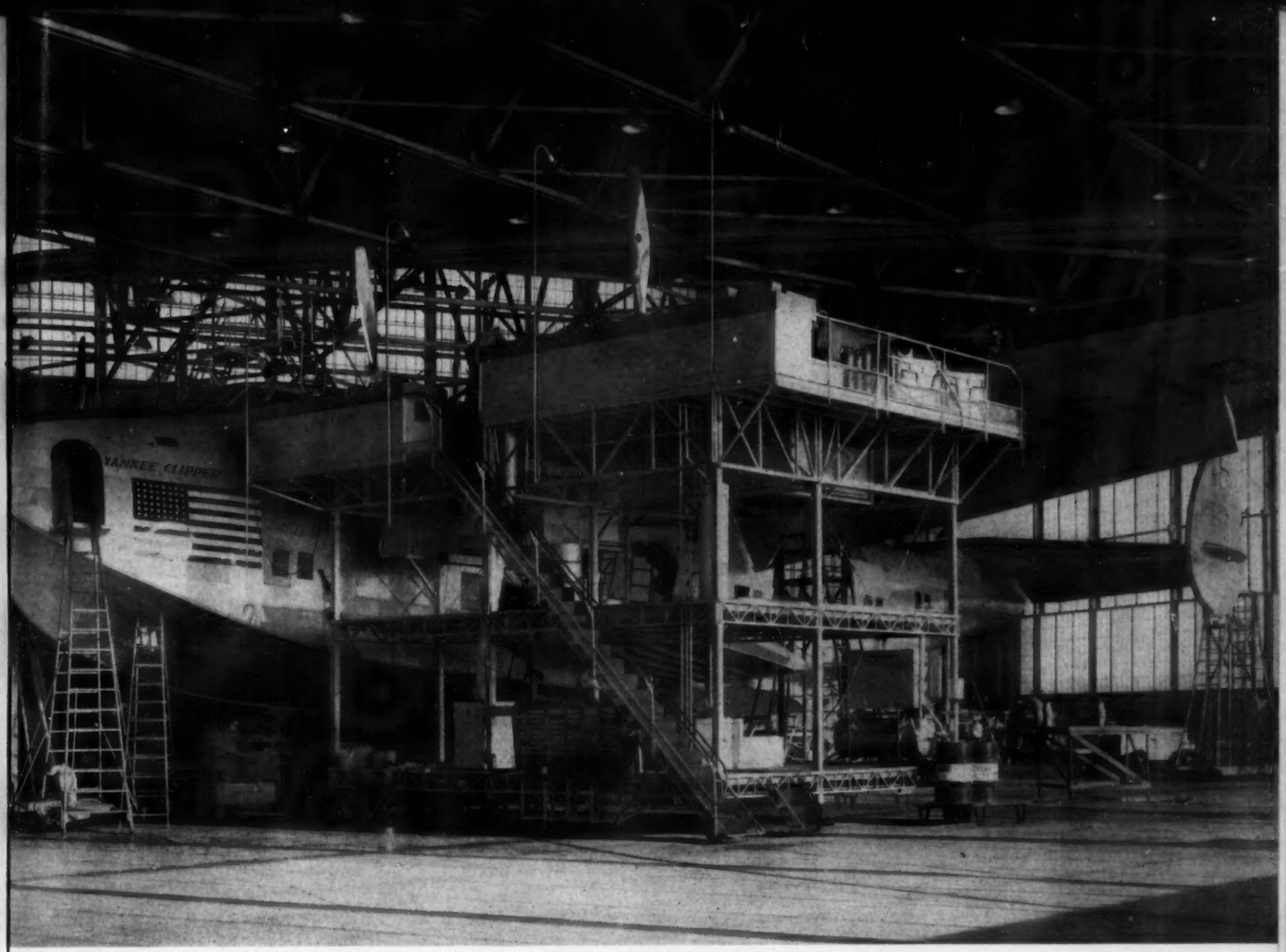
Hedrich-Blessing

Building Equipment: Heating, Lighting, Power, Service Outlets

Perhaps the most complex part of designing buildings for the aviation industry has to do with providing the necessary services. Not only is the airplane the most up-to-the-minute symptom of technological advance—and hence, one which requires the newest and best for service, maintenance, construction, and repair. Such a building as a modern hangar or assembly plant, necessary because of the size and unique function of the airplane, complicates the problem. Heating an assembly building, for instance, is a difficult job.

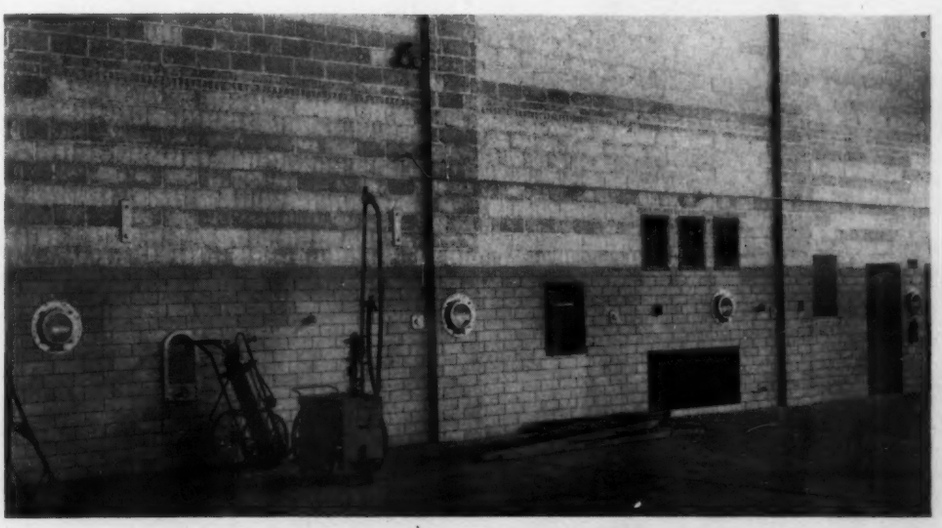
At the top of this page is a view of a Curtiss-Wright assembly building designed by Albert Kahn Associated Architects and Engineers, Inc.; at right is an Army hangar. Both are huge structures with tremendous doors which increase heating difficulties. Various methods have been used in different cases: one interesting means consists of a series of floor outlets, running full door width, from which blasts of warmed air are directed upward across the opening.





Lighting has several unusual jobs to do, particularly in as assembly or reconditioning building. Above is Pan American Airways' Clipper hangar at La Guardia Field, New York. Light in such structures must illuminate under sides and vertical surfaces of planes, as well as top surfaces, well enough to permit fast, accurate work. (It takes 141 mechanics, working three 8-hour shifts, to perform in two days the complete inspection of servicing routine which must be carried out before a Clipper just in from Europe can be sent on the return trip.) Parts of the building can be used as reflectors: White floors have been found to reflect much light to the bottoms of planes. And below is a hangar in which the lower portions of walls are highly light-reflective, and porthole-like lighting fixtures have been installed slightly below normal eye level to provide supplemental illumination.

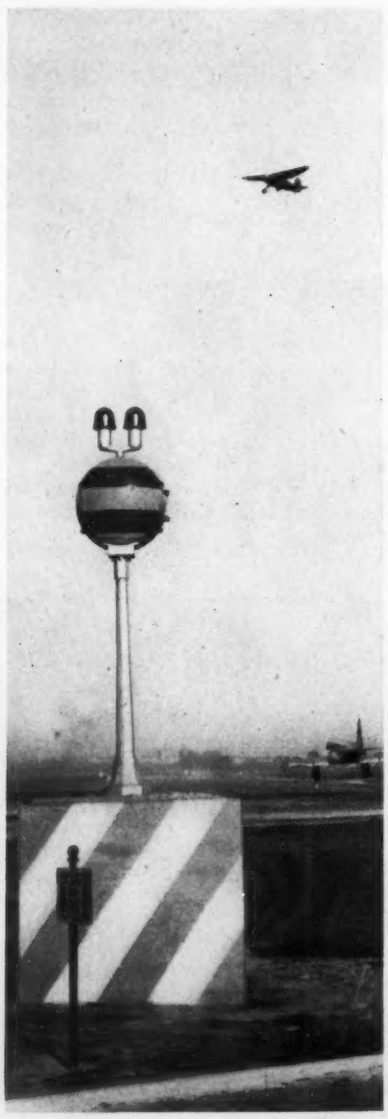
To provide power and service outlets needed seems a more complicated problem in a plane factory than in a commercial hangar. At times this has been done by using an underfloor grid of service lines, similar in principle to sub-floor duct systems used in office buildings, with outlets at specified intervals. Removable plates cover the outlets when they are not in use.

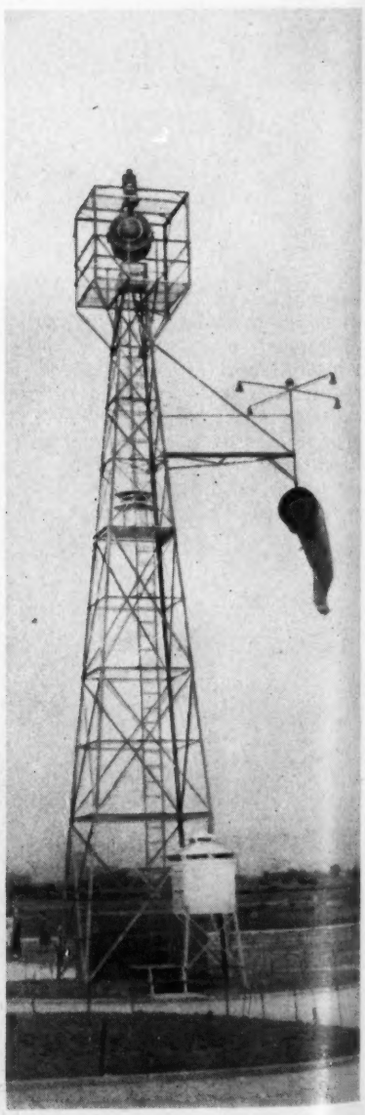


Field Lighting

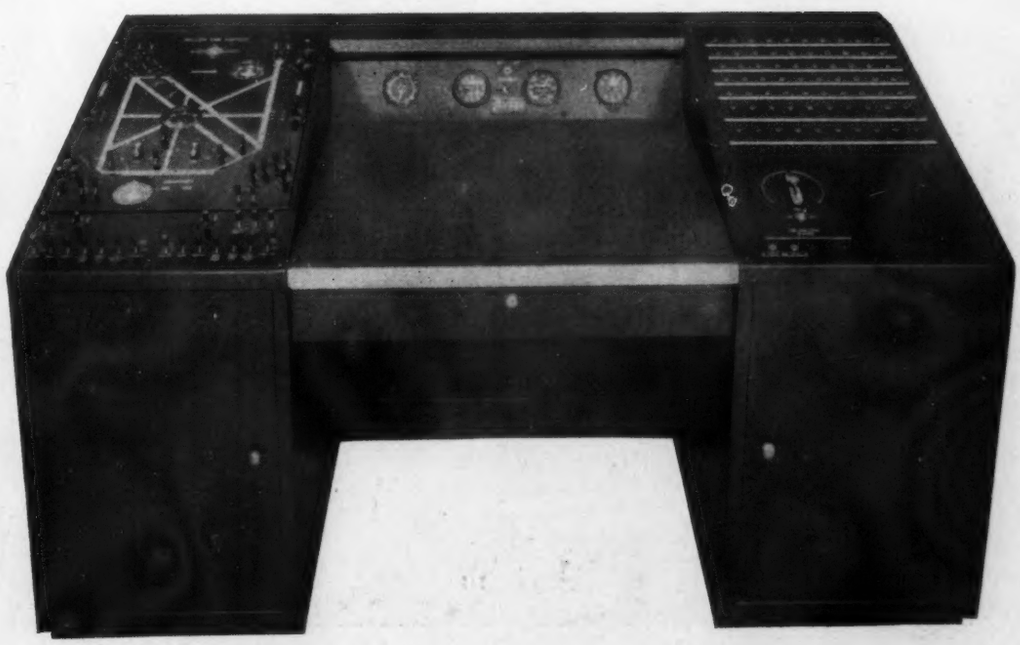
Airport lighting is such a specialized part of design for aviation that expert advice should be sought in all cases. It is necessary to indicate the limits of the field and location of runways, which have also to be illuminated. In addition, air traffic control is facilitated by portable and fixed traffic lights as aids to radio control. The whole system of lighting is unified and controlled from the operations suite. There all the aids to flight control are coordinated. It can be seen from even this abbreviated description that airport lighting is one of the most important factors to be considered in design of modern airports. With multiplication not only of the number of planes, but also of the types of air traffic —private, cargo, passenger, and military conventional plane and helicopter—problems of air traffic become even more involved, and lighting's part even more important.

Above, range and flood lights at North Beach Airport, New York, one of the earlier installations. Below, portable traffic signal as used at Syracuse (N. Y.) Airport. At right, floodlight at end of runway, with transformer housed in base, North Beach Airport; and beacon tower with illuminated wind sock, Philadelphia Airport.



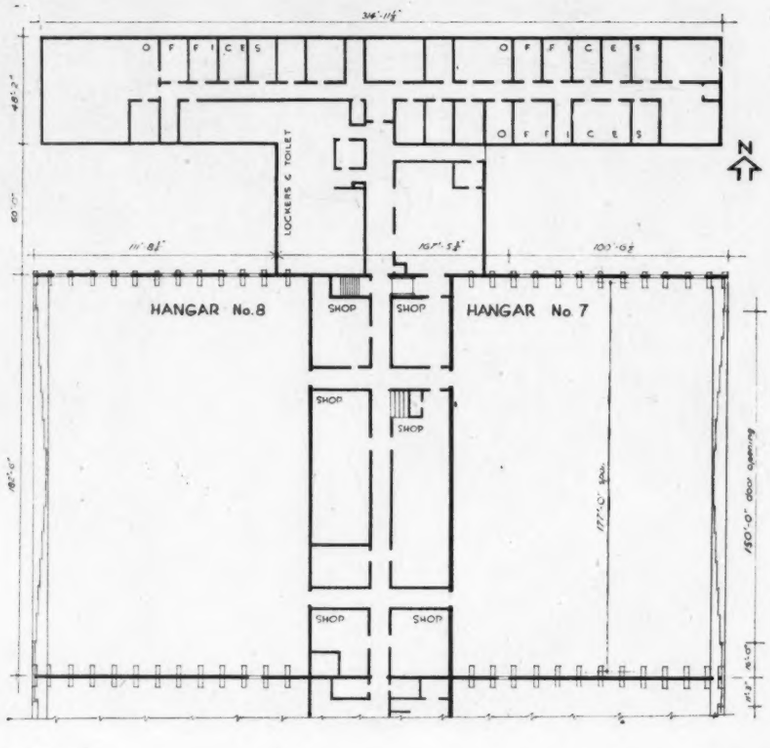


Above, floodlights installed on hangar piers, where they help illuminate the hanger apron as well as runways; Rochester, (N. Y.) Airport. Below, typical control desk for lighting equipment, showing the complexity of the system; Ford Airport.



Wood Hangars for Modification Center

U. S. Army Engineers

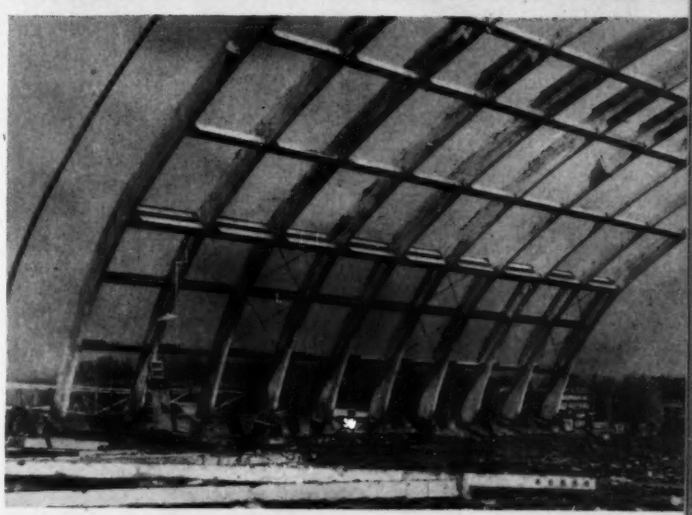


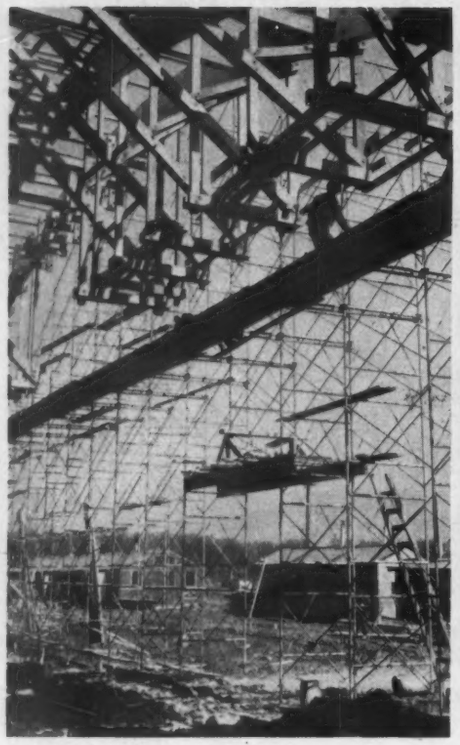
Photos, Courtesy Engineering News Record

One of the new architectural problems created by the growth of aviation—the provision of facilities for large-scale repair operations—was solved by the U. S. Army Engineers according to the plan illustrated on the opposite page. This midwest modification center, intended for large military aircraft, consists of eight hangars in two north-south rows of four each. The illustration shows two of these hangars of 177-foot span each. The other six, although of but 160-foot span, are similar to the two shown. The two rows of hangars are separated by two-story timber-frame shops; about sixty feet from the hangars, both to the north and south, are timber-frame office-administration buildings; one of these includes a control tower.

Controlling factors in the design were the necessity for elasticity in the use of the hangars, and the need for a convenient placement of shops and offices. According to the layout, shops are within easy reach of the hangars, and office buildings are placed where shop noises cannot disturb the office personnel. The hangar doors open out on areas free from obstruction from either shop or office buildings. Because of their location between the hangars, the shops are easy to heat. The photograph on the opposite page shows the front of an administration building and the arches of the hangar beyond.

Supported by long-span laminated timber arches, the project makes minimum use of critical materials. Photographs at the right show the arches being raised, and in position. The two largest hangars required arches of 177-foot span, probably the longest timber arches ever erected.

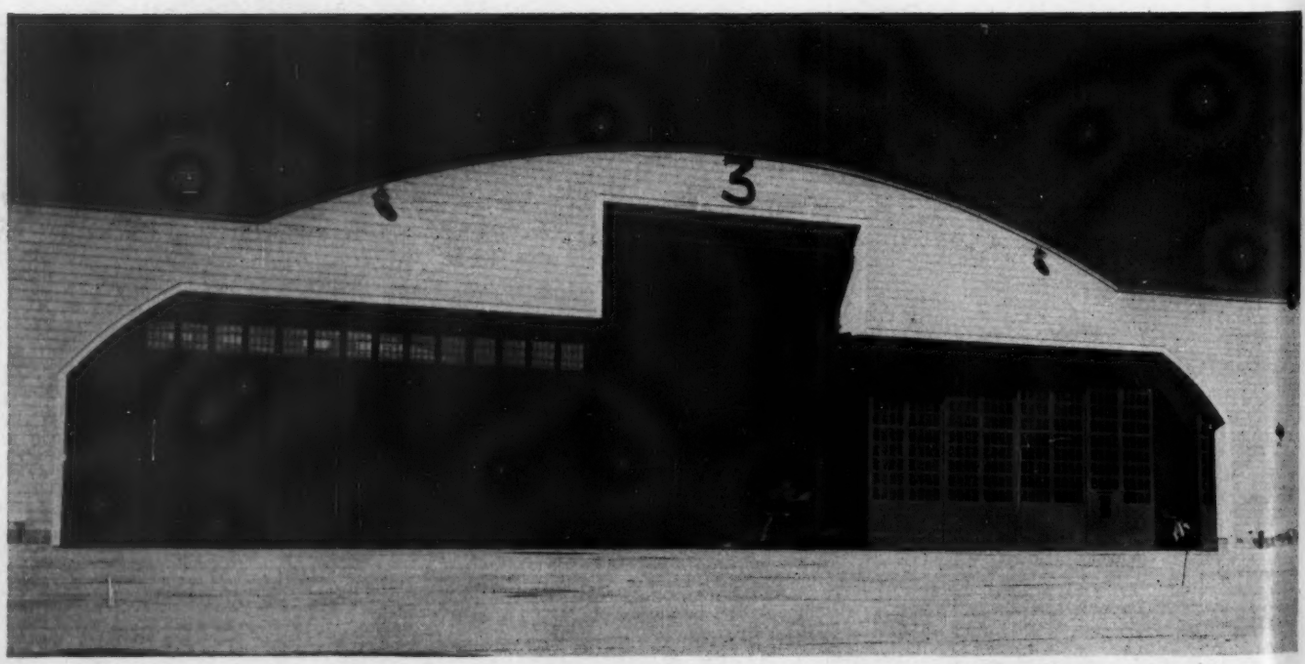




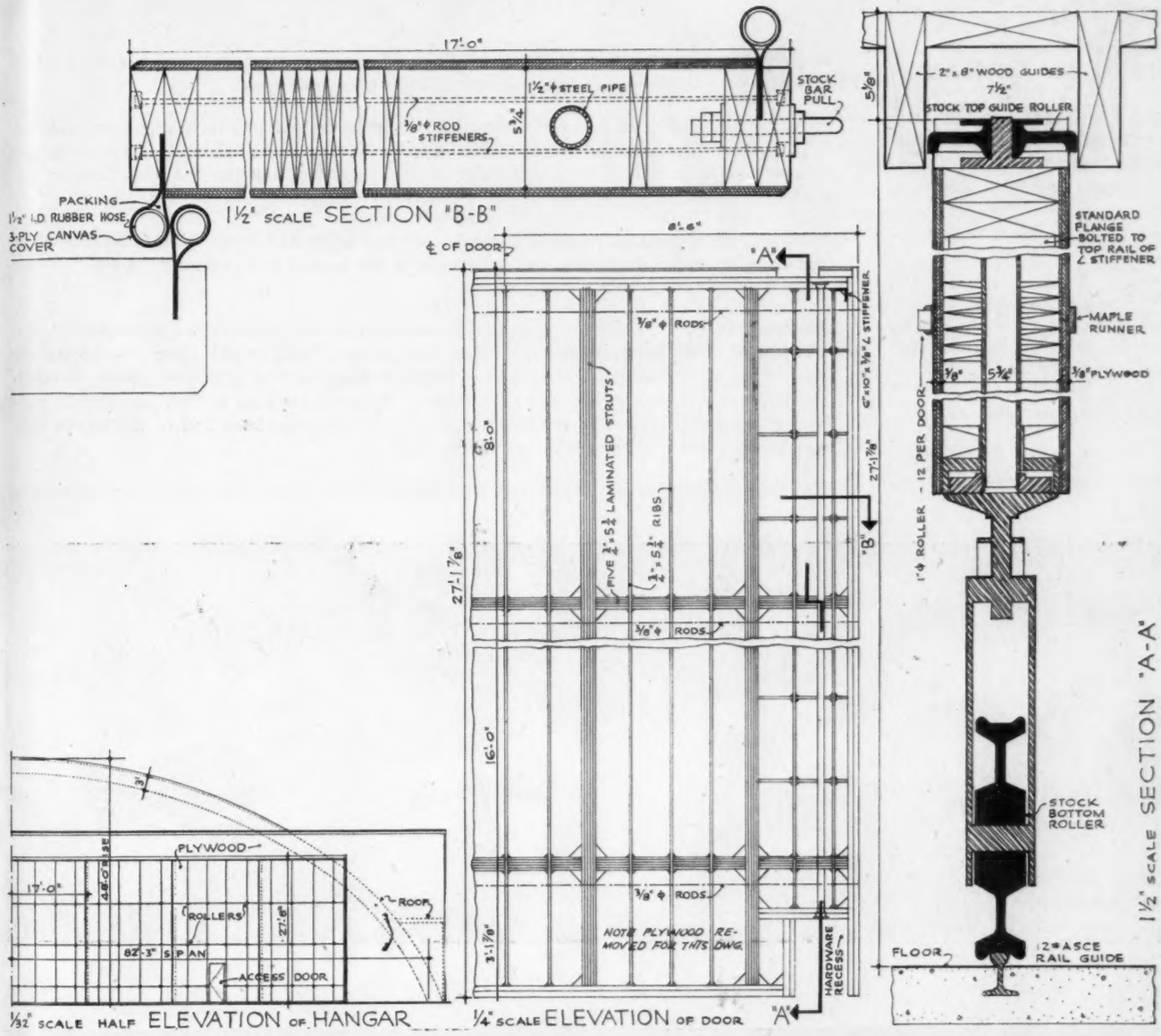
Photos on this page courtesy Engineering News Record

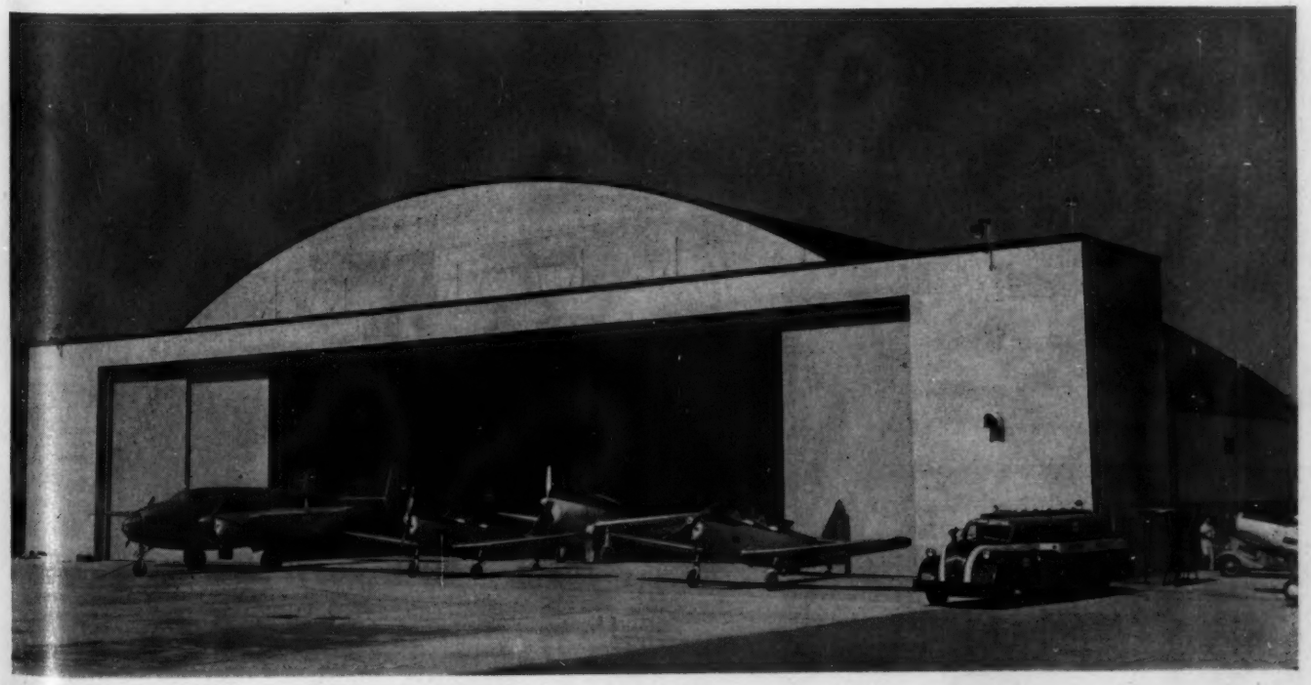
The hangar doors illustrate the flexibility characteristic of the whole plan. For the larger hangars, sliding doors of steel construction supported on a steel rail were used to provide an opening 150 feet wide and 24 feet high. Reinforced-concrete counterweights suspended on each side help to operate them. To provide additional vertical clearance for the tail pieces of the larger planes, a 13 by 24-foot steel roll-up door was installed; a small electric motor placed within the arch-ribs supplies the motive power. Thus smaller planes can be accomodated without using door-space or motive power needed for the larger planes.

Photographs on this page show a detail of the arch-bracing; a hangar door in construction; and a completed hangar door with the tail-gate open.



Selected Details: **Wood Hangar Door, Fairchild Aircraft, Inc. Albert Kahn Associated Architects and Engineers, Inc.**





Hangar Building, Bomber Plant, Ypsilanti, Mich.

Albert Kahn Associated Architects and Engineers, Inc.

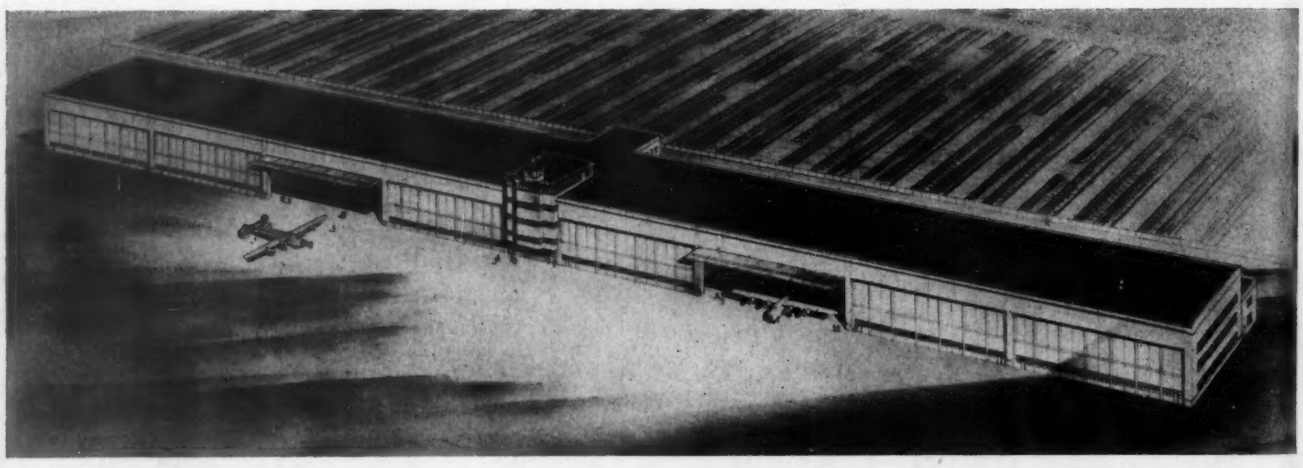
In size, this hangar building is fully in keeping with the vastness of the bomber plant of which it is part—one of the world's largest industrial units under one roof.

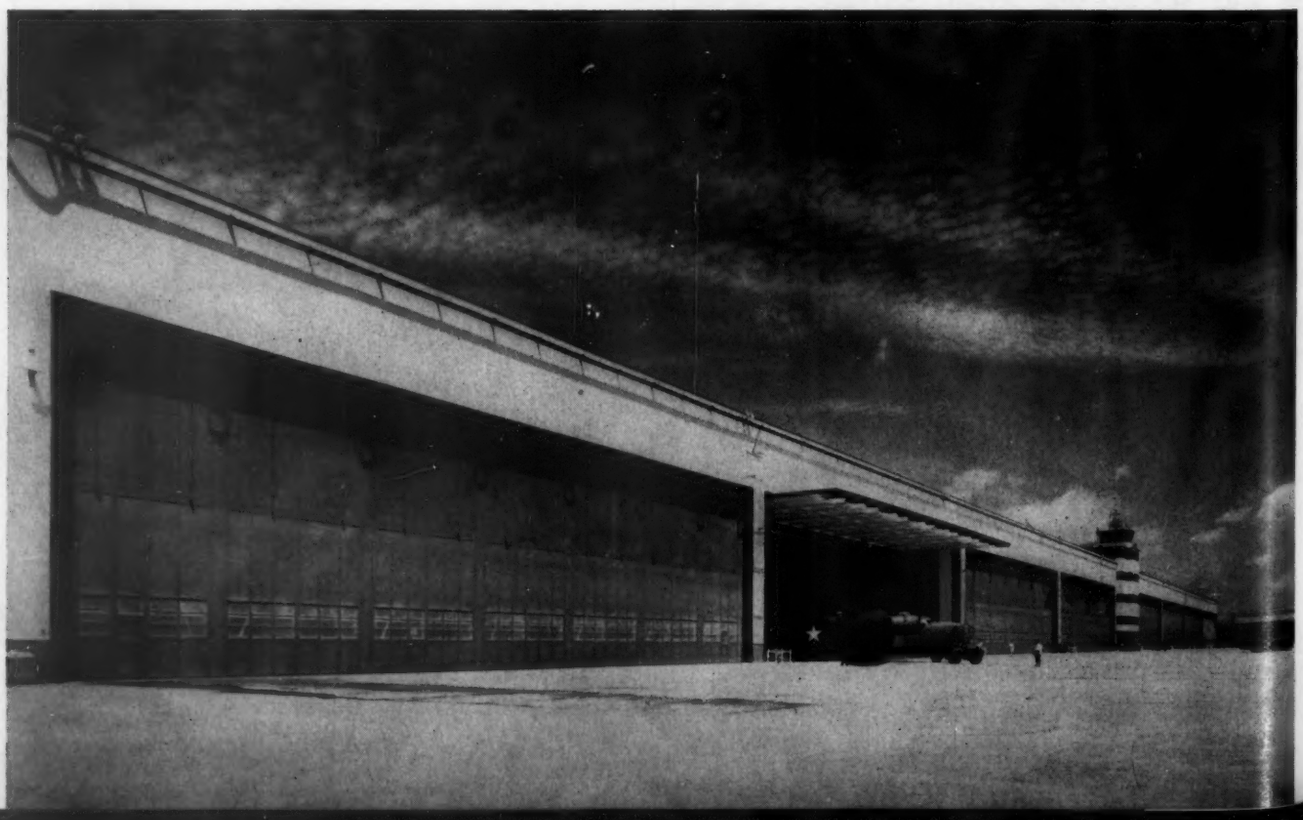
Actually, the hangar, for purposes of description, can be divided into three parts—the five-story building that constitutes its center section, housing administrative offices, living quarters and classrooms, airport control room and many other departments, and the two great hangars that flank it.

Bordering the airport, the hangar building is 1,256 feet long. The central portion contains offices and living quarters. Extending the full length of the hangar is a two-story "lean-to," 30 feet wide, housing service rooms and garages.

The total area of the hangar sections is 156,000 square feet of uninterrupted floor space. A notable feature of the hangar set-up is the vast concrete apron that extends along and beyond the entire front of the building. The apron is 1,450 feet long, more than two city blocks in extent, and 450 feet wide, which is nearly a block deep. Also awe-inspiring in their size are the eight hangar doors that open onto the concrete apron. Electrically-operated and of the canopy type, each of the doors is 150 feet wide and 40 feet high.

To make possible the easy handling of engines, propellers, wings, and even fuselage sections of





the big bombers, two large overhead cranes, operating on monorails, have been installed in each hangar section. Each set of cranes has a total lifting capacity of 30 tons.

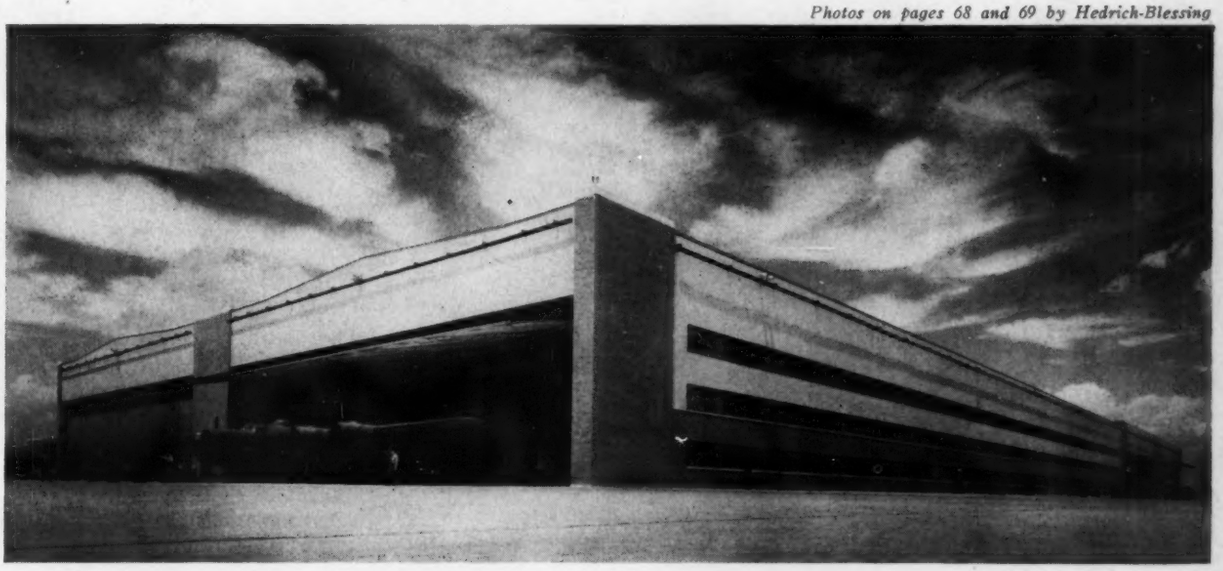
Approximately 3,400 tons of steel went into the construction of the hangar. Notable for their length are the three trusses that extend the length of the building, along its front. Two of them are 450 feet long and one is 350 feet in length. They are supported by double columns, which separate the eight hangar doors. To support the roof, transverse trusses, spaced at intervals of slightly more than 21 feet, frame into the long front trusses and the rear wall. The roof is of cement tile and composition. The building was designed to withstand a wind stress of 20 pounds per square foot.

The exceptionally large glass area of the building brings in plenty of daylight. Walls of the building are of brick up to the sill line. Then comes a strip of continuous steel sash, topped by a wall section of gunite. From sill line to roof, which is 59 feet above the ground, sash and gunite sections alternate.

Floors of the hangar portions are of cement, while those of the central section, containing offices and other facilities, are of asphalt tile and terrazzo.

The first floor of the five-story central portion of the hangar contains an Army officers' waiting

Photos on pages 68 and 69 by Hedrich-Blessing



room, where pilots can rest and relax between flights. On this level are also garage space for fire trucks and ambulances, always in readiness to rush out onto the flying field in the event of accident; a first aid room for the treatment of minor injuries, and electrical control and battery rooms. There is also a parachute loft, beginning on the first floor and extending through to the ceiling of the second. Here parachutes are hung for drying and also are repacked.

The second floor contains offices for the officers in command and for pilots and other flight personnel.

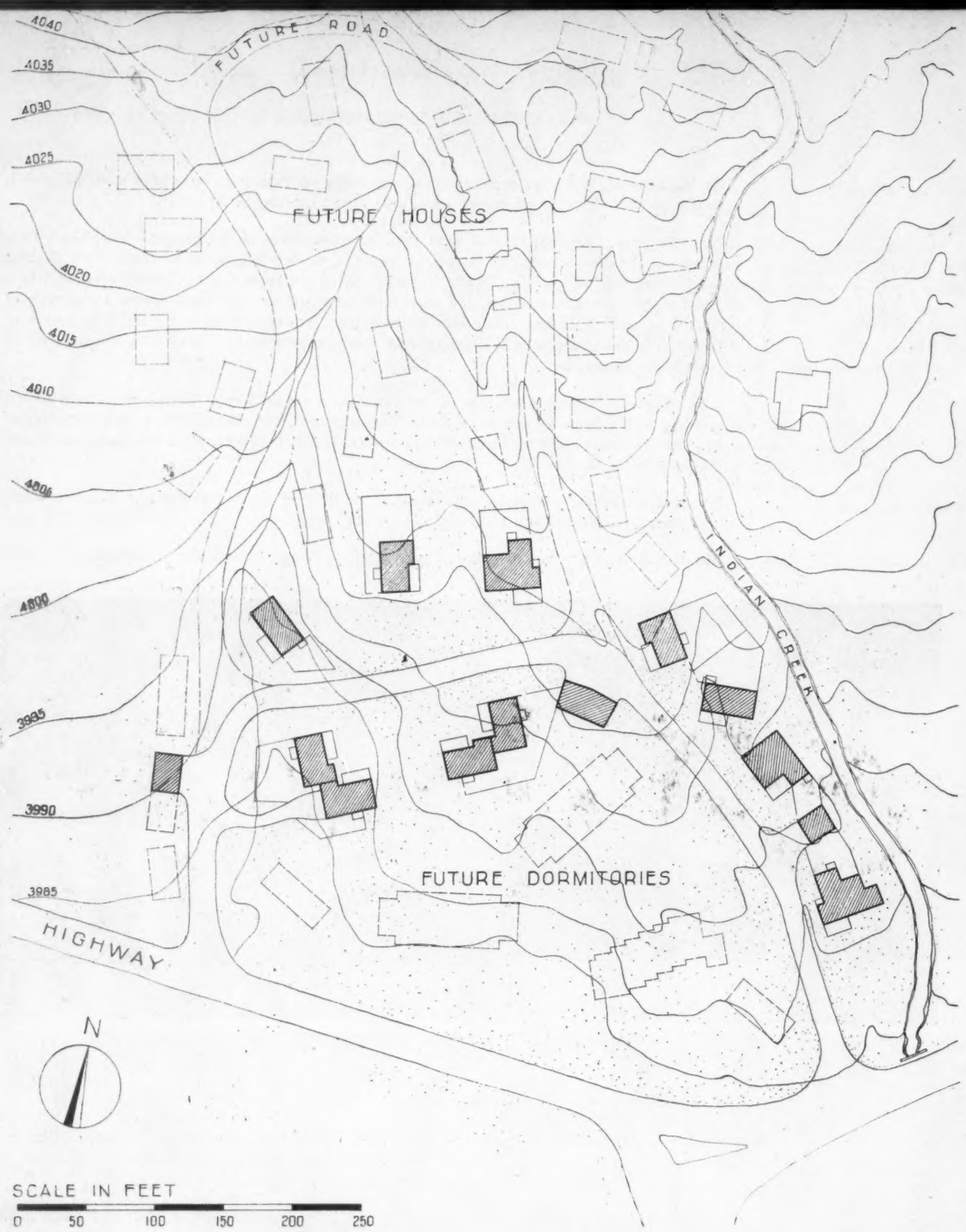
On the third floor are classrooms for the training and instruction of personnel, a mess hall for enlisted men, private dining rooms for officers, modern kitchens and refrigeration equipment. On this floor there is also a Link Trainer room, where Army fliers can be given periodical tests.

Largely given over to living quarters is the fourth floor. Here are two bedrooms, each with private bath, for officers of lesser ranks, and a dormitory accommodating 36 enlisted men, with full shower and toilet facilities adjoining it. Lounge and recreation rooms are provided on this floor for both officers and enlisted men.

The fifth floor houses the communications system and the weather bureau of the airfield.

Above the fifth floor and commanding a view of the entire airfield and the surrounding countryside is the control room. From this point are governed the movements of all incoming and outgoing planes. Field lighting and all other operations are controlled from this point.

The five-story central portion of the hangar is fully air conditioned.



Housing, Yosemite National Park, Calif.

Eldridge T. Spencer, A. I. A., Architect

Located in Yosemite Valley, this housing project, completed in 1942, was designed to provide facilities for employees of the Park and of the Curry Company, concessionaires of the National Park Service. It had to meet the rigid requirements of the Park Service. Included in the program were site improvements, sewer, electricity, water, roads, landscaping, and play yards, as well as the individual buildings.

In order that the development would not interfere with the natural landscape—for which Yosemite is famous—the site chosen was a very rocky slope, hidden from the public view by a dense growth of cedar, oak, and manzanite. The houses are arranged to suit the terrain, each with privacy and view assured by the rising terrain.

Photos by Ansel Adams

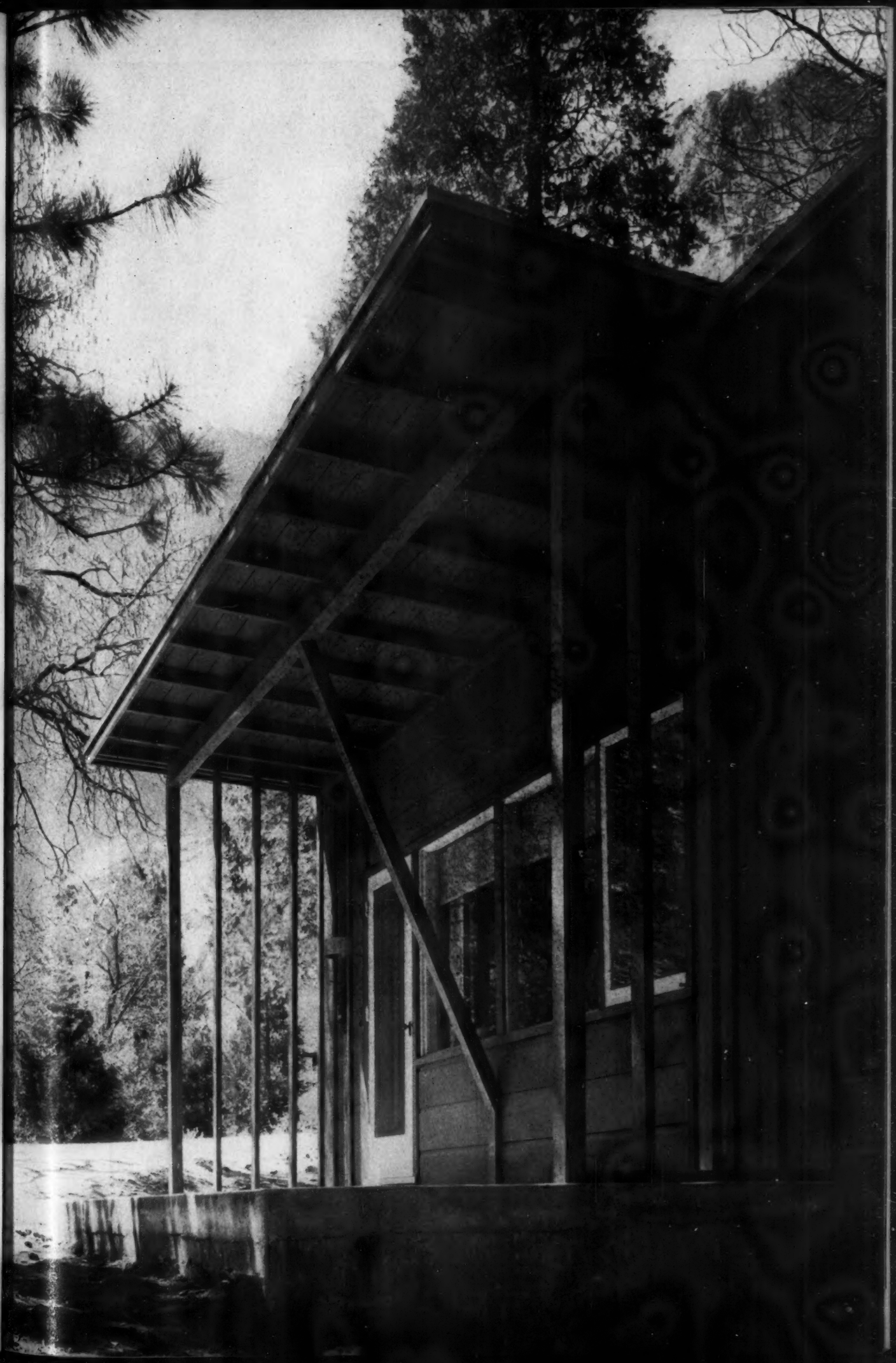


Photo by Ansel Adams

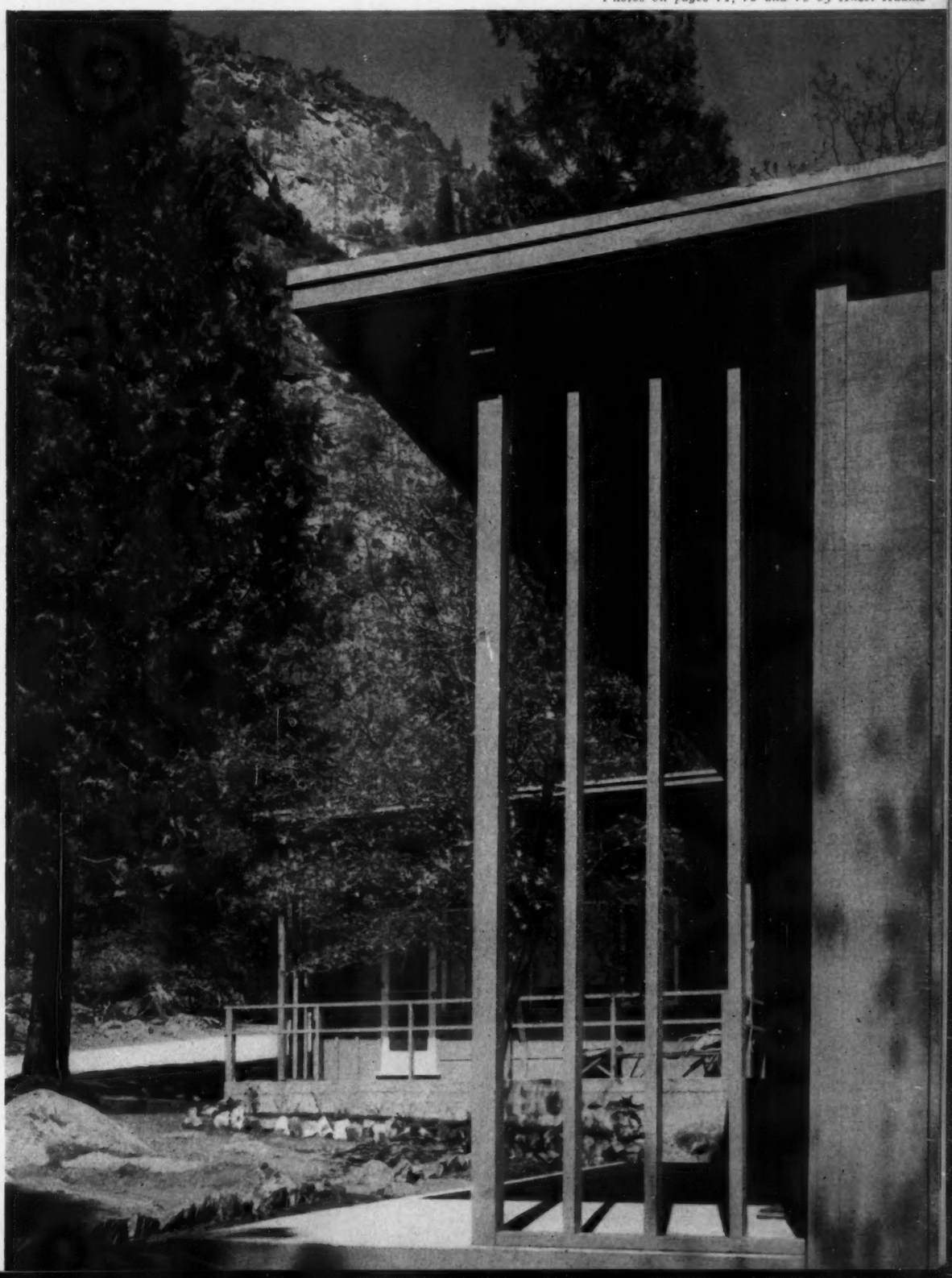
943

The accompanying floor plan is typical, although since there are almost no duplications of plan and detail, none can be said to be truly the "type." Construction is simple: wood frame, insulated for heat and sound, on continuous reinforced concrete foundations, with resawn redwood exterior finish applied in simple patterns to provide texture and composition.

Roofs of the Yosemite houses are flat decks with membrane surfacing. This was used both to keep the houses as low as possible (thus minimizing their projection into the landscape) and to make the most of the protecting blanket of snow as heat insulation in cold weather. This device was previously used by Mr. Spencer in a gasoline service station for Yosemite, in which the roof was designed for an 80-pound snow load (NEW PENCIL POINTS, January, 1942).

Interior finish of the houses is gypsum lath painted with casein paint. Floors are oak, ceilings are of insulation board chosen for its acoustical properties. Kitchens are equipped with electric ranges and refrigerators. Heating is provided by oil-burning space heaters, with supplementary electric wall radiators in baths and bedrooms. There is no basement. Cost was approximately $4.50 per square foot, complete.

Photos on pages 71, 72 and 73 by Ansel Adams



English Woods: Public Housing, Cincinnati, O.

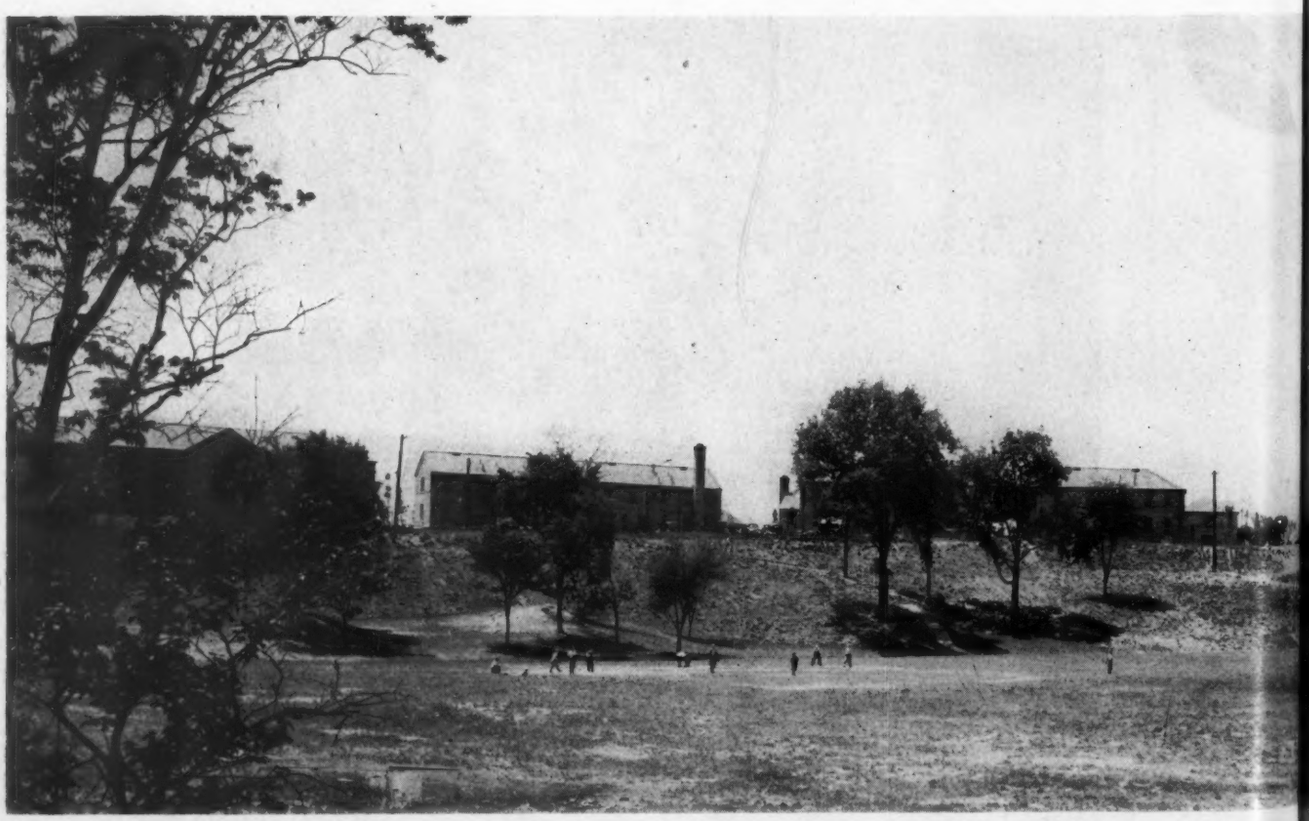
Allied Architects for the Cincinnati Metropolitan Housing Authority

English woods is situated on a height well above surrounding valleys—a location which would never, in all probability, have been used by private developers. However, it has excellent possibilities as far as light, air, and view are concerned; and with a reasonable amount of grading became, to quote the Chief Architect, "ideal for a housing development."

A glance at the accompanying site plan will reveal that there is a difference in level of nearly 200 feet between the lower right hand corner of the site and the upper left. The crown of the spur of the hill, on which most of the buildings are placed, was graded, and the resulting fill was used to level off the present large playground area.

Thoroughfares shown on the plot plan are paved vehicular traffic ways (except for the lane leading the future recreation area). Not shown are the entrance and service walks, which provide access to all sides of the buildings, and the unpaved trail walks which lead from various parts of the development to the surrounding streets. Scattered among the buildings, each located to serve a group of structures, are seven parking courts and seven minor play areas. Most of the small play areas have facilities for spray pools, etc., for children's use in hot weather.

Orientation of the buildings was governed partly by contours, partly by the prevailing winds, which come from the south, southeast, and east, depending on the time of the year.



Allied Architects:
Fredrick W. Garber, F.A.I.A., Chief Architect,
Kruckemeyer and Strong,
Fechheimer and Ihorst,
Harry Hake and Harry Hake, Jr.

Charles Scott Riley, Landscape Architect
W. E. Bodenstein, Mechanical Engineer
John R. White, Civil Engineer

Recreation area, surrounded on three sides by buildings, was leveled with fill from the ridge. Future recreation area will be developed on a level spot which is a filled-in quarry, hence land unsuitable for building. When developed, it will probably be extremely popular, as it overlooks the whole valley; from it the tops of tall buildings are visible in the distance.

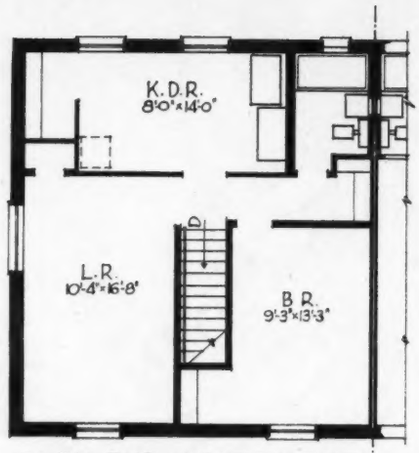
English Woods, continued

Typical unit plans, shown at right, are combined in the following proportions:

Apartments		*Row Houses*	
2 room	64	4 room	316
3 room	300	5 room	70
Total	364	Total	386
		Total apartments	364
		Total dwelling units	750

Most of the buildings have their long axes running northeast and southwest; a few lie in other directions of the compass. There are only four types of buildings; but although the number of buildings totals over 80, the changes in level and the curved streets have helped the designers to avoid that sterile monotony which characterizes many less carefully laid out projects.

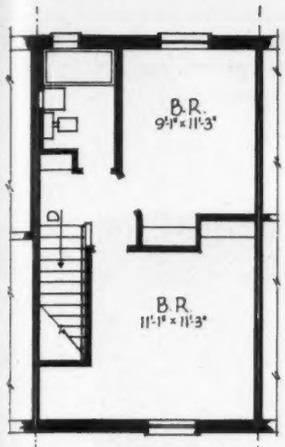
Points worthy of note on the unit plans include the economical placement of stairs; location of closets, stairs, etc. (where possible), so that they form noise barriers between apartments; and provision, in most cases, of space inside the main entrances so that outside doors do not open directly into living rooms. These considerations, however, apparently could not outweigh such public housing requirements as the paramount need for economy in planning; the bedroom floor plan of the ingeniously interlocked larger row house units seems to offer little opposition to noise passing from one apartment to the other.



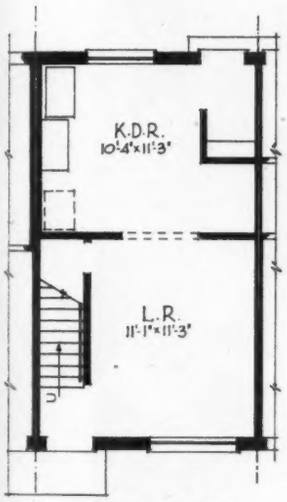
3½ RM END APARTMENT

2½ ROOM END APARTMENTS

SCALE · 0 5 10

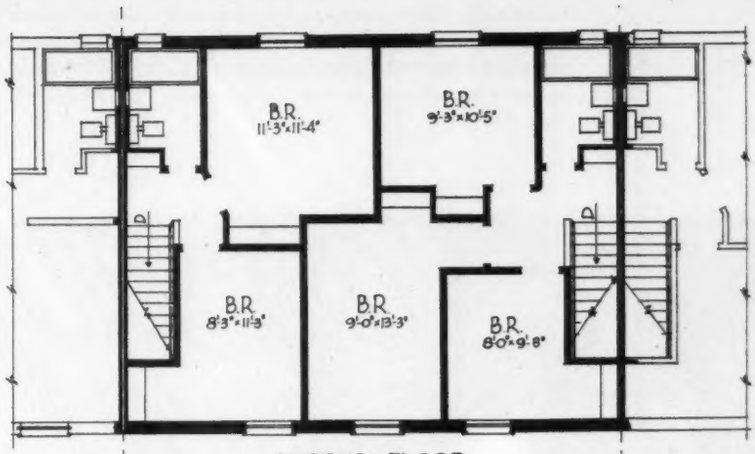


SECOND FLOOR



FIRST FLOOR

TYPICAL 4½ ROOM ROW-HOUSE



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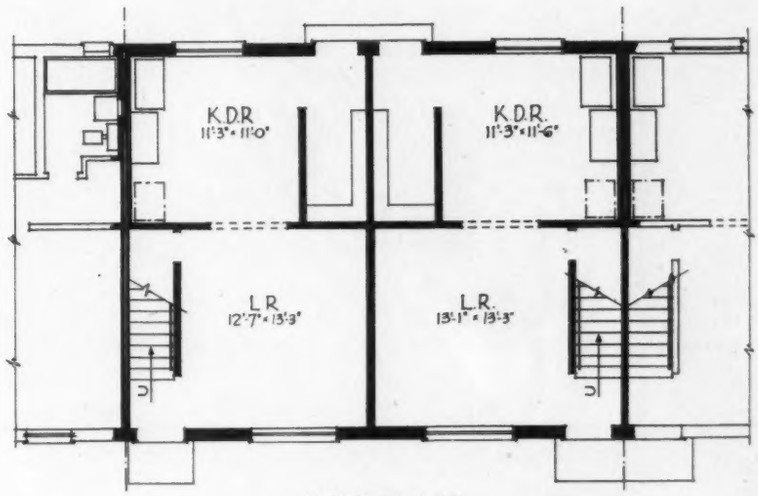
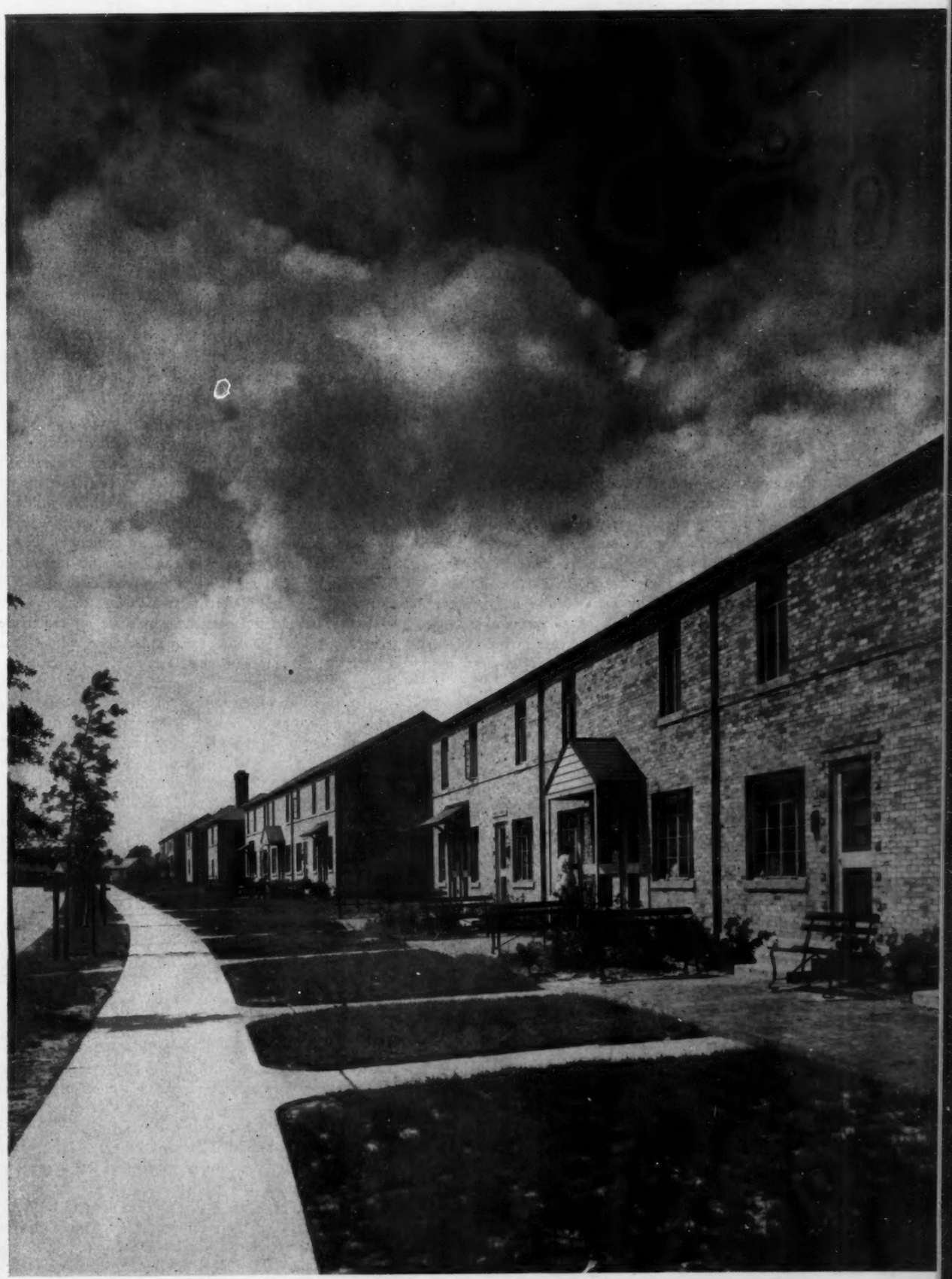


FIRST FLOOR

TYPICAL INTERLOCKING 4½-5½ ROOM ROW-HOUSE

In these photographs the variety achieved with the aid of curving streets and contours is readily visible. Unfortunately, however, black-and-white photography cannot convey the full impression of color, which is most important in English Woods. Roofs are of blue slate; brick is a common back-up type, soft, and tannish-pink in color. It was chosen partly as a background for the planting, which has not yet attained its ultimate growth. Another influence on the selection of brick was the fact that the same architects used a red brick in another public housing project, and did not want any casual spectator to have cause to say "There's another housing project."

One criticism of English Woods might concern its remoteness from any local shopping center. It was planned to have stores flank the administration building in the center of the project, but the war has prevented their construction. Gabled roofs have been used on all the buildings; this too, may be criticized. The designers state that gables were used because difficulties, due to climate conditions, have been encountered locally with parapet walls and flat roofs; and since the amortization period for the development is 60 years, it was thought desirable to avoid trouble. Also, adds Mr. Garber, the gabled roof "removes the institutional look."



An Architect Looks to New York City's Future

by Charles Downing Lay, A. I. A.

All architects are concerned about the postwar future and are trying to discern their position in it; what cities will be like, when they have a chance to design and build again.

Conditions seem favorable for a great change in the pattern of our living. Real estate is nearly bankrupt; technological advance in the planning and equipment of all kinds of buildings has made half or perhaps more of our homes and factories so out of date that they should be destroyed to be replaced by structures better planned, better built, better equipped. The conditions that made twelve story tenements necessary to show a profit on expensive land no longer exist in large districts of the city. It would be difficult today to buy a useful building to tear down and build a new one which will pay interest on the old and on the new. Unearned increment on building sites has gone by the board. The habit now is to buy any building for a song and slick it up enough to pay interest on the song. This is contrary to modern ideas of full employment since it tends to make durable goods too durable.

The savings banks have written off tremendous losses but still think of real property in the same old way, as if it had value above the return on its use. Doubtless there has already been a revolution in our attitude toward real property which property owners of all kinds are reluctant to admit. If the war lasts two or three years longer the banks may then be ready to finance a new kind of building project on urban land which, because of this revolution, closer control by zoning, and a fairly complete rapid transit system, has lost most of its speculative value. This leveling of land values is bound to increase because of further restrictions by zoning and rapid transit extensions until land becomes, more or less, community property having no great exceptional value because of its location.

In all the activities of reconstruction of a city which is still going through a revolution the architect should be the leader, thinking for the future, urging the die-hards to be realistic and to help to direct a force which cannot be stayed; pointing out fresh fields for safe investments, and with foresight planning a better city.

It is doubtful if the present tax structure in New York City can be maintained. If assessments were reduced to anywhere near actual values the City would have to go to the State Legislature for power to impose other taxes in order to get its necessary income. Pay-as-you-go is universal with Federal Housing Loans and would be readily accepted by everyone in New York if the tax were based on a percentage of the rent and paid in monthly installments. To bring about some such reform should be the first interest of architects, who well know that the cost of living in New York must be paid by the people who live there and that it makes no difference whether it comes out of the rent pocket or some other pocket.

People who talk about the future have a lot to say about gadgets, new metals, new plastics, new everything. The architect must prepare himself for using these things in the buildings he designs and in order to use them he must see that the building code is elastic enough to permit anything new which does not endanger high standards of construction and equipment.

The new things will probably be partly or wholly prefabricated which means more work in the shop, less work on the job. The unions of the building trades must therefore be placated by the assurance of enough work on installation to keep the usual number of men fully employed in New York City.

Before the architects commit themselves to any type of new development in New York City, they should try to discover why the population of Manhattan is declining. There have been many reasons suggested: the attraction of the suburbs for families with small children, ease of travel to distant parts of the city by rapid transit lines, the automobile, and other reasons without number.

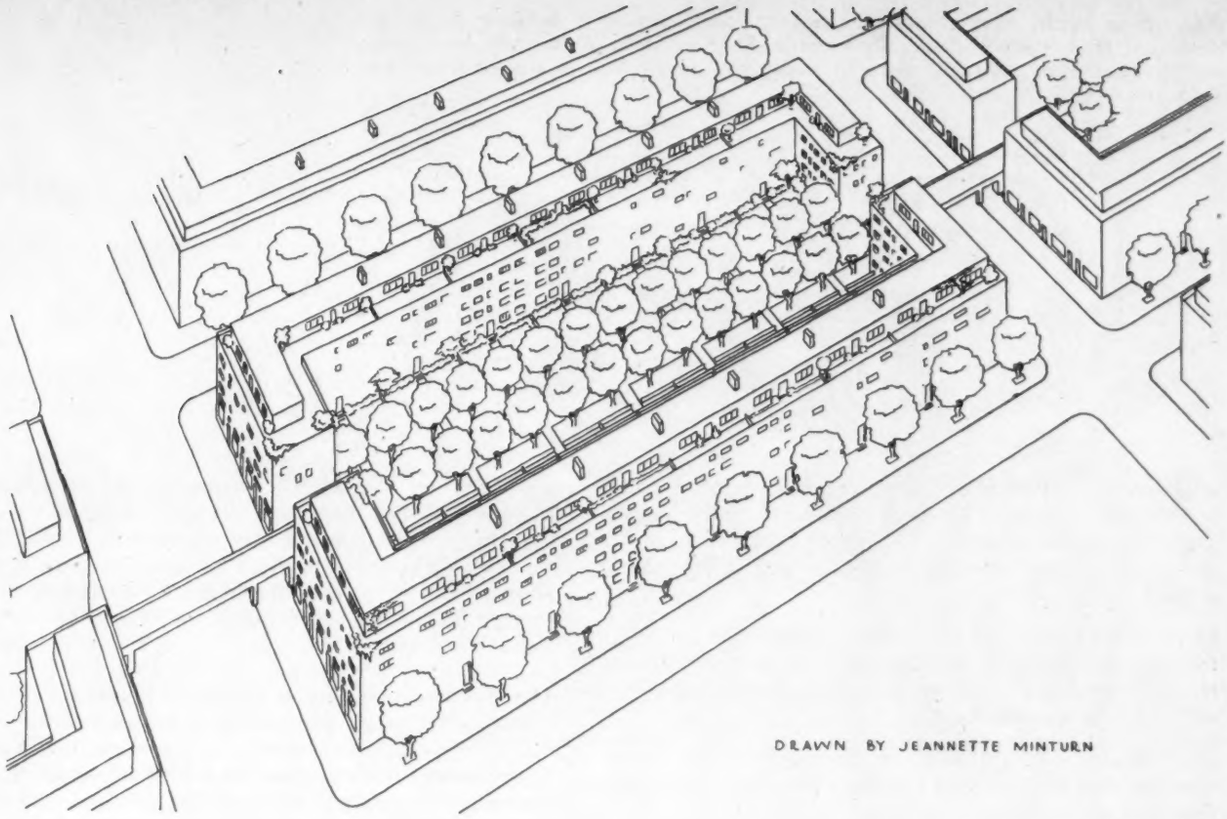
My own explanation for the exodus is purely emotional: people leave Manhattan because they do not like life there. Why this is so I cannot say. There are as many reasons as there are people leaving, but in general I think the things that influence them most are difficult living conditions in old-fashioned houses, not enough play space indoors or out, and traffic dangers on the streets.

My own discontent with living in Manhattan has been resolved into a desire for a simpler kind of living somewhat as follows: in any district north of 60th Street which is ripe for rehabilitation I would use the present street plan which would save heavy costs. The average city block would be occupied by row houses not more than 40 feet deep (40% lot coverage) height 54 feet in all, possibly garage space in the cellar, an elevator from street level. Houses will be 120 feet from back to back. There might be private gardens 40 feet deep with low fences for each unit of 50 feet. Between the gardens would be an esplanade or pedestrian street from avenue to avenue. The whole space between houses thus becomes a park for adults and a playground for children. There would be one heating plant for a whole district, with mains running through the cellars. Apartments could be bought or rented. If bought and fully paid for, the monthly payments would be for taxes, maintenance, heat, light and power. This is a deliberate plan to establish standard housing for all income classes, giving those who have lower incomes more space than they are used to, and people with higher incomes more light, more air, and a more pleasant outlook. In no case will any interference with through ventilation, north and south, be permitted. For lower-rent units, elevators might be omitted and the district might be less fashionable.

The elasticity of the plan is great. One individual might take twenty-five feet, six stories high; another might have forty by a hundred feet on one floor.

Shops would be on the avenues, but not where pedestrian streets enter. A higher level for the pedestrian street, where practicable, would make possible bridges across the avenues.

It is my belief that people never change. What they have once liked they always like, and, to a degree, what I like other people like. Because of my experience I am more understanding of likes and dislikes than most people. I like ease and do not ordinarily like to walk even a quarter of a mile to a park, or to have my children that far from home. I like to look out a window at grass and trees; to sit by the front door (in the scheme I propose, the garden door) and see children playing and people walking by. I like the children to be under a watchful eye, not ten or more stories below, where they are too far away to be reached quickly in case of trouble. I like to walk not more than half a block to the corner store for cigarettes or

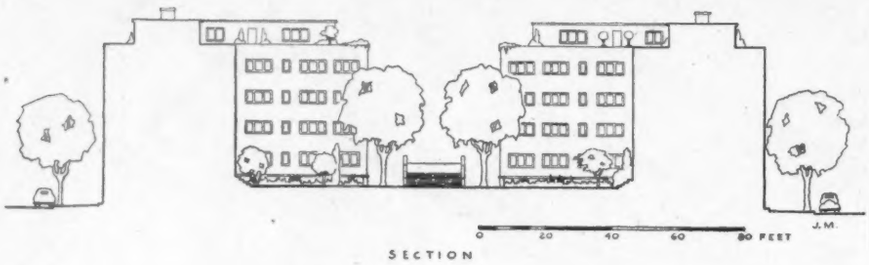


DRAWN BY JEANNETTE MINTURN

Charles Downing Lay proposes that the rectangular city block be retained, but that the type of development upon it be required to provide more of the amenities than today's haphazard practice permits. With a limited height and depth (front to back), and a block interior raised a full story height above sidewalk level, ample sun and air are assured. Block interiors might become pedestrian walkways, with bridges over the streets. Below is a view of the neighborhood surrounding New York's Harlem River Housing, in which are types of development which Mr. Lay questions: superblock, intensive apartment use, and the more usual heterogeneous mess. Mr. Lay's scheme, though designed for New York, might be equally suitable in other cities where a similar street pattern and orientation exist.

Fairchild Aerial Surveys, Inc.

The section shows, more clearly than words, how limitation of building height and depth can provide sunlight and airy room in block interiors. Raising the level of the interior court is an additional means of raising the ground level to a point where sunlight can strike it.



SECTION

a newspaper. All these comforts are provided in my scheme, which besides has other advantages: additional pedestrian walks might be laid out running parallel with the avenues and forty feet away; on these pedestrian ways there could be second story shops.

Shops on the avenues could occupy the whole building (40 by 80 feet) or there might be offices above. The gross area occupied by buildings would be about 30 percent, disregarding avenues and buildings on avenues.

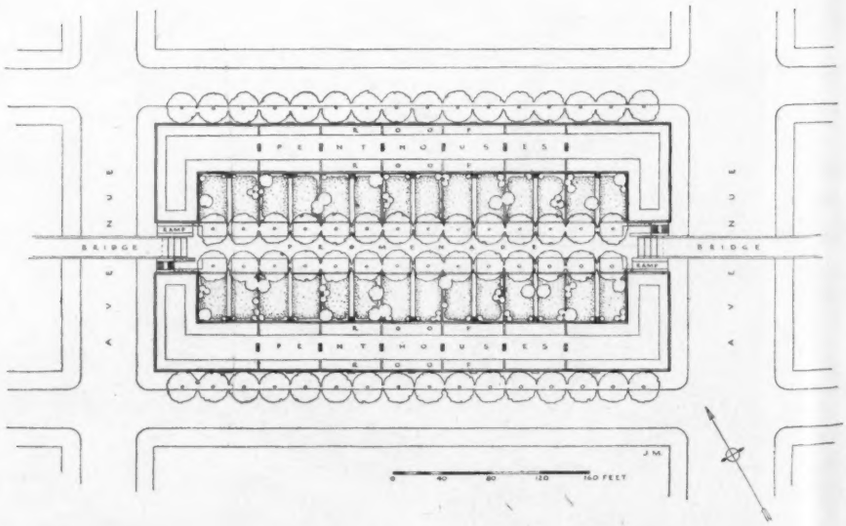
The romantic town planners of the early twentieth century were horrified by New York's gridiron plan, but I have always thought it admirable for an American city the size of New York when physical conditions permit. It makes it easy to orient one's self and easy to find one's way about. It avoids the ugly, angular street intersections of the Washington plan, which produce such awkward triangular lots, impossible to build on; and it gives every house on a side street an ideal orientation, a little west of south. It is fairly well in scale with human beings, providing, when not too closely built up, enough light and air but not too great distances to walk. It is to my way of thinking a great mistake to abandon it for the imaginary advantages of the super-block.

I do not like the super-block and see no great advantage in it. Streets are always favorite playgrounds for children and might well be kept as such with traffic barred. It is doubtful if the space would be as useful the year round if put in lawns and planting. I do not like the tall buildings of the super-block. The shadow of a thirteen story building in winter is too great. I must have sunlight and for shade in summer I prefer trees. In the super-block everything is too far away; down in an elevator, along a walk for possibly three long blocks and across a busy street to the drug store—which I would like to have on the corner of my own block.

The total residential area of Manhattan is estimated to be 9,500 acres. At 150 people per acre net, my plan would accomodate 1,425,000 people, but the number per acre net would not have to be increased much to equal the 200 per acre gross which now houses the present population of 1,867,000 and the difference could be adjusted in the 25 to 50 years which it might take to complete rebuilding on my plan.

Urban redevelopment done on this or a similar plan will require much new legislation, which architects must help to obtain. It is time to reconsider the whole question of real property and to make it more fluid as an investment and more stable in value.

I believe this is a favorable time to try something which will give New York more comfort in living, more *rus in urbe*, and make it possible for us to enjoy all the emotional and intellectual delights of a great city without foregoing satisfaction of the deep spiritual necessity for sunlight, air, and sight of trees and flowers from the window.



Mr. Lay's scheme is not radically different from that of many typical blocks in Manhattan; the principal difference lies in the unification of the peripheral buildings and provisions for full utilization of the interior space. Curiously, there exist in Manhattan delightful examples of similar use of the interior court; but these isolated cases serve only to emphasize the possibilities if the practice were more universal.

(*Continued from page 26*)

Periodicals

The periodical reviews were written by Margaret Greenough King.

England

THE ARCHITECTS' JOURNAL. August 12, 19 Issues). In a speech to the Building Industries National Council Mr. George Hicks suggests strongly the organization of the building industry. There seems to be much waiting for a definite policy of some sort from the government and at the same time a strong feeling that some simplification of its machinery should be put into effect. Astragal has some fun with a critique on paths, geometric or romantically wandering, and suggests a functional approach—that they lead to and from destinations. The Library of Planned Information considers precast elements and finishes for Roof Construction.

The *Physical Planning* series continues this time with Astragal's Part 2, Planning Diary covering the period 1932 to 1942—quite a period of change. Flats by Messrs. Joseph at Warwick Grove are very clean-cut.

The August 19 issue comments on another opinion delivered at the BINC Building Congress. Mr. R. Coppock does not believe in prefabrication, but in traditional materials. There seems some confusion here as to the meaning of "prefabricated." Astragal comments wisely on this. The *Planned Information Sheet* continues coverage of roof construction. 1943 and 1944 were so full of "Physical Planning" that Astragal's diary on the same covers only these two years. The much talked of Fairchild house of Hamby and Nelson is published here.

The current architectural news in England is extremely well covered by this magazine.

THE ARCHITECTURAL ASSOCIATION JOURNAL (June, July Issues). Apartments at Oslo Court, Regents Park by Robert Atkinson and A. F. B. Anderson are interesting. By a technique of set-backs and balconies with very open fenestration the apartments should have maximum light and air.

At a meeting of the Architectural Association, J. B. Priestly addressed the members on "Urban Britain After the War" and recommended compactness of areas, rather than the "garden city idea," for urban layouts.

THE ARCHITECTURAL REVIEW (August Issue). Nicholas Pevsner writes on the architect, Pugin, who died at the age of forty in 1852 and who was one of the first to take the Gothic Revival seriously.

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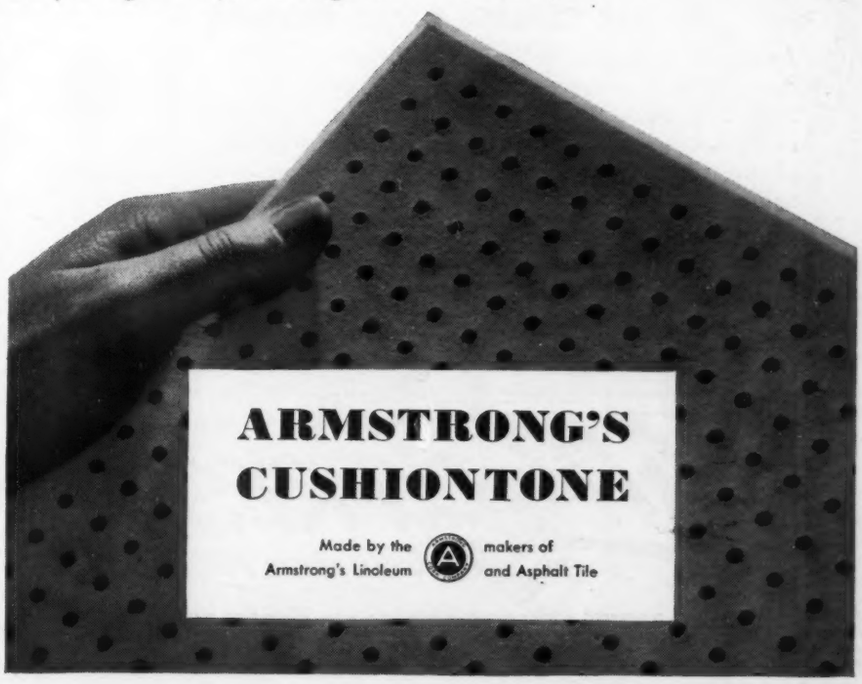

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The major portion of this issue covers schools. A very interesting and advanced group at Littlehampton, Sussex, compares extremely favorably with a Senior school at Bingley, Yorkshire having dehydrated classical-type columns at its entrance and a carefully balanced central portion. It isn't until he starts the wings that the architect of the Bingley school makes his building aware of its function. The most outstanding of the schools published is the Bromma High School For Girls, Stockholm, by Paul Hedquist, who, though limited by site and unable to use the spreading plan found in English schools, does an admirable and beautiful school building.

Social reintegration by means of murals by good modern artists is being promoted by the Ministry of Food. This issue shows some progressive work already in existence.

United States

THE AMERICAN CITY (July Issue). For the architect who is now or will be after the war concerned with large site-planning and the redesigning of existing cities this magazine crammed with sewerage, garbage disposal, and water system information will be informative. It would be well for us to be more informed on these matters as has been evidenced to many architects working on the tremendous army camp layouts.

The Wagner Bill is reviewed as not as desirable as the Urban Land Institute's *Neighborhood Development Act* introduced by Senator Thomas.

Norfolk has a new Army-Navy Recreation Building which is described as being of "modern and functional design." It is truly "modernistic" and to really modern architects that term needs no amplification. Done under the supervision of the U.S. Engineers and with "plans drawn by Clarence A. Neff and T. David Fitzgibbon" it is easy to see why it is what it is.

"Zoning and Planning Notes" and *"Traffic Control and Facilitation"* have some valid suggestions for planning.

New York's public housing plans for Staten Island seem better than existing conditions, but not far enough ahead of them to be worth constructing.

The customary thorough work on mechanical plants is in this number.

ARCHITECT AND ENGINEER. (August Issue). William Wilson Wurster's office building for the Schuckl Canning Company is one of the best of its type. In terrible contrast is the Burbank, California, City Hall by architects William Allen and W. George Lutzi. George Pampel, Advertising Manager of I. F. Laucks, Inc., writes

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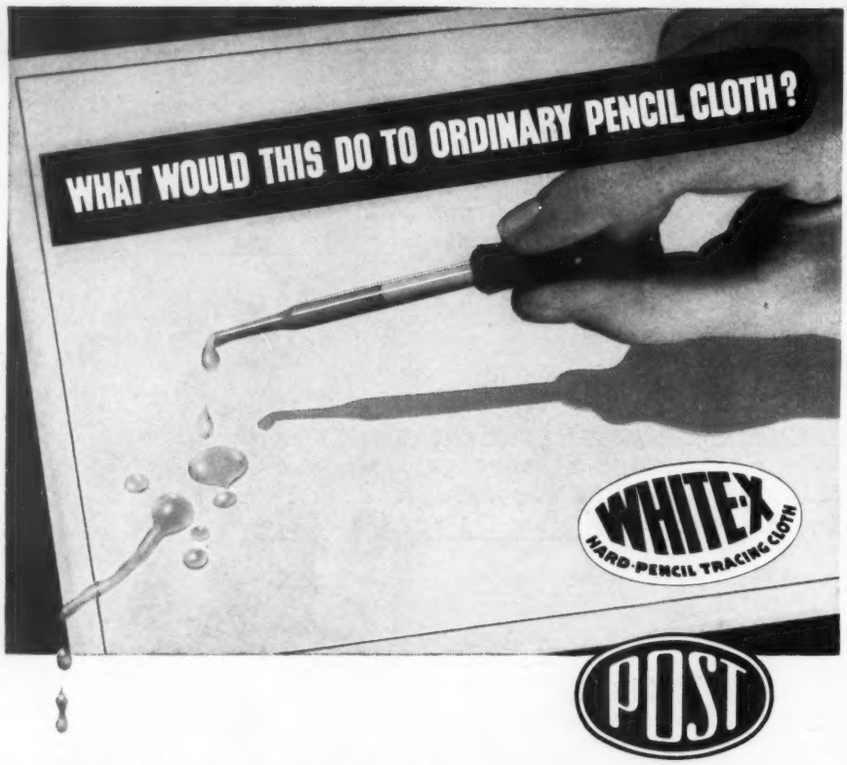

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very intelligently on *Planned Housing For the Future* stressing the part private enterprise must play in "total housing" after the war.

A postwar gymnasium is interesting and an "open type" school near an aircraft factory is shown.

THE ART DIGEST (August 1, September 1, 1943). Among the usually excellent art criticisms and write-ups of exhibits is a forum on *What Place Art in the Post-War World?* It is started in this issue by opinions from the art staff at Cranbrook Academy. Eliel Saarinen, President and Director, believes that postwar design will necessarily be not that of individual buildings for their own sakes, but as part of a larger thing, the community. The uninitiated often have asked of him, "What will be the 'style' in architecture after the war." Mr. Saarinen answers that there should be no such thing as style—just good architecture suitable to its use. Carl Milles, Director of Sculpture, hopes there will be patronage of the arts in the manner of Holland and Sweden. Zoltan Sepeshy, Director of Painting, says, there will be no break with tools and materials but sincerely believes that "something new, . . . important, something of ever richer depth will transform painting."

(September 1). The forum on postwar art continues in this issue, with Arthur Millier stating after several paragraphs of mundane morbidity that art will go on, "It always has." Howard Devree, New York Times critic, believes that our days of wandering are over and that America is destined to be a new art center. Nelson Lansdale, former Newsweek art and music critic, now with Pan-American Airways at Natal, Brazil, is necessarily impressed with the smallness of the world and feels there will be less nationalistic painting, a broader view of the arts from America.

CALIFORNIA ARTS AND ARCHITECTURE (August Issue). *Notes in Passing* is extremely lively this month in its comments on the manufacturers who want to maintain the postwar world exactly as it was before the war. The major concern of this issue is the winners of the *Designs for Postwar Living* contest sponsored by the magazine and several manufacturers.

William Schuchardt, member of the City Planning Commission of Los Angeles, in discussing decentralization, removes the blame for this movement from the advent of cars, and says they were only a means of escape from unbearable situations. He fully supports Mr. James Felt's conviction that outmoded buildings should be demolished and points out that a "considerable percentage of the buildings designed by McKim, Mead and White" have already been replaced.

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REVIEWS

Planning Bibliography

Seventh in the series of annotated bibliographies of planning literature, by Margaret Greenough King.

Selected Items

The Bureau of Urban Research, Princeton University, Princeton, New Jersey. This publication, reporting on published planning literature, selects the NEW PENCIL POINTS, May, 1943 article by Lorin A. Thompson on *Population Distribution: Centralization vs. Decentralization* for summary. Herbert J. Sommers' *Infant Mortality in Rural and Urban Areas,* finds that the city has lowest infant mortality because of accessibility to hospital, that it has rural areas next to lowest because of healthier conditions, and has urban areas the highest rate because of absence of either of these factors.

Excerpts from Eliel Saarinen's *The City, Its Growth, Its Decay, Its Future,* stress the reluctance of townspeople to make changes in their areas because they "have gotten used to" things as they are. *How Old Are Our Homes* shows the comparative youth of American urban communities. The Jacob L. Crane report on *Postwar City Planning and Rebuilding* is covered. The Detroit City Plan Commission has proposed a one-quarter mile protective belt at the proposed municipal airport there as the city becomes more aware of its future place in air transportation. A survey by Carlisle Davidson of the significance of property ownerships in New York City (Manhattan) is included and Cleveland Rodgers' *New York Plans For the Future* is quoted.

Another issue of this index covers Chauncey D. Harris' *Functional Classification of Cities in the United States;* Frederick J. Adams' *Shall We Ration Crowding;* E. L. Thorndike and Ella Woodyard on the cost of living in cities as influenced by size and latitude; as well as studies of the effect of the war on some southwest communities; fire protection in the Los Angeles area; an NRPB report on where to find vital statistics on "Human Conservation"; and a study of *Urban Population Trends and the Public Schools* by Frederick A. Conrad of the University of Arizona.

In covering such articles as *A Postwar Housing Program for Urban Areas* by Harland Bartholomew and a New York Times report by Tania Long on *London's 50-Year Plan,* this publication makes a fair summary of activities current with planners:

Postwar Planning

Published by Advertising Publications, Inc., 100 East Ohio Street, Chicago, Ill. Composed of material printed editorially and in the special "Postwar Planning" feature in recent issues of ADVERTISING AGE, this businessman's publication stresses the development of individual leaders in the world to follow the war and covers the situation of business in the chapters titled "Planning for Postwar Economy" and "Postwar Marketing and Distribution," "Federal Government Planning," "Regional Plans," "What 15 Industries Are Doing," "The Postwar Consumer," "Employment in the Postwar Era," "Foreign Postwar Planning," and "Postwar Foreign Trade," reveal no astounding new facts but do urge the business man toward intelligent thinking and give a set of opinions on future business opportunities. This is just one more indication of the large attention planning is receiving in every field.

Recommendations For the Disposition of Federal War Housing

July 1943. National Committee on the Housing Emergency, 512 Fifth Avenue, New York 18, N. Y. 10c. A Federal and local machinery should be set up to obtain facts on utilization of housing and war

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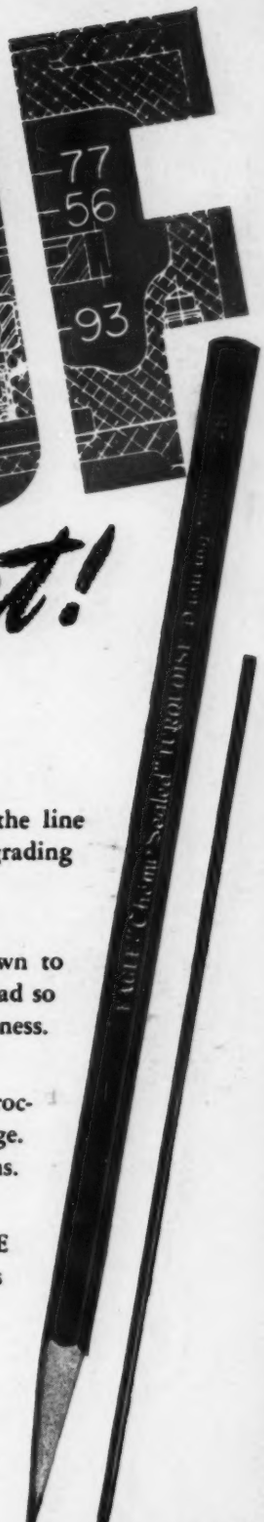

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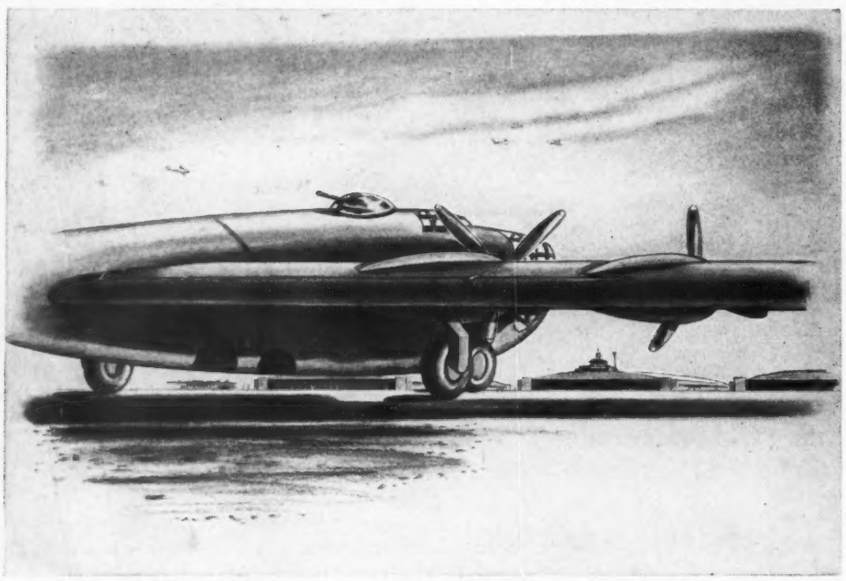
plants after the war. This study, involving surveys of community industries, pre-war populations and estimated increases as well as a coordinated national industrial promotion program, should be begun now.

Federally owned housing should be put back in the hands of the community for fair market competition, the committee believes, and should be managed by a special agency under the National Housing Agency called the Disposition Division. This agency would have to deal with city and regional planning in conjunction with community officials in order to distribute fairly. Immediate procedure for the Disposition Division is outlined, also that for the communities in which federal war housing is located.

Final restrictions suggested are as follows —for three years after the war the community must take over all housing with the option to keep it under federal control for this period; unfinished projects should be demolished if within the three year period no use is found for them; temporary housing must be demolished; no leases under federal control hold under community management.



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These proposals are of importance and are some of the first well considered ones on the matter.

Plan Now For Future Public Works

Construction and Civic Development Department, Chamber of Commerce of the United States, Washington, D. C. Mr. E. P. Palmer, of the Construction and Civic Development Department Committee, in the foreword expresses the optimistic belief that no conversion of the construction industry will be necessary after the war. It may be true that no actual conversion will be necessary but it is also obvious that many new techniques and materials developed in other phases of the war effort will need to be incorporated into construction trades. If the conversion of the building industries is less than other industries it should be apparent that this industry is best able to absorb the many men, as well as some of the plants, who will be released after the war. This all depends on the preparedness of the nation and communities toward use of this industry. Mr. Palmer feels that many are already preparing and more groups will join the movement when they realize its importance.

We are warned against leaving all of the work up to the federal government, urged to see that local governments plan public works in conjunction with larger planning. The undirected make-work depression projects are cited as typical, unplanned results caused by a lack of preparation. The writer suggests that the engineers and architects being freed from their large war projects be employed to work out physical planning. Clearance of slum areas, obsolescent residential areas, and building of new facilities are included with a summary of the improved financial status of many states and cities which should permit them to start plans now. A commendable presentation of the building code ills and possible cures are covered here.

Planning Legislation 1943

American Society of Planning Officials, 1313 East Sixtieth Street, Chicago. 50c. This is a summary of all legislation by states during their 1943 sessions, though in the foreword it is stated to be incomplete. In most cases the acts seem to aim at strengthening the planning agencies of the states though it is quite possible that some of the shifts have nothing more than political importance. Some of the most outstanding aspects of the state readjustments are the shift from the use of the term State Planning Commission or Board to such titles as Illinois Post-War Planning Commission, Indiana Economic Council, and the Department of Publicity and Industrial Development (Utah), and the usually small appropriations allowed the new agencies. The tone of these changes would indicate a stronger, more publicized organization, perhaps brought about by the fear of "being

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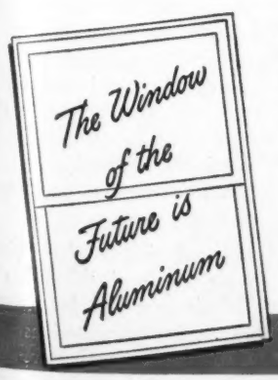

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beaten to the game" by other states. This is surely a disappointing characteristic.

In the field of state planning California, supported by a decent appropriation, places on its new State Reconstruction and Reemployment Commission, an educator as well as state officials, thus recognizing the excellent work of the Universities there. Connecticut, one of the leaders in successful planning in the East, has strengthened her Board and extended its research.

City Planning is implemented in almost every state by increased funds and jurisdictions.

This publication, unfortunately not complete, still provides a valuable key to opinion on postwar planning by the states.

Draft of An Act for Urban Redevelopment

Prepared by Alfred Bettman, Attorney, Cincinnati, Ohio. Distributed by American Society of Planning Officials, 1313 East 16th Street, Chicago, Illinois. Mr. Bettman, Chairman, City Planning Commission of Cincinnati, Vice-Chairman, County Planning Commission of Hamilton County, Ohio, has drawn up a "model act" for urban redevelopment providing for "development and redevelopment of blighted (including slum) and other areas" through appropriation of property and through the "sale or lease thereof to redevelopment corporations or public housing authorities." It also directs that procedure and financing of such projects be covered by a directing organization.

Many cities have already adopted such procedures and it is here suggested that tax exemption be considered along with a simplified procedure on the condemnation of land as part of such an act when it is put into use.

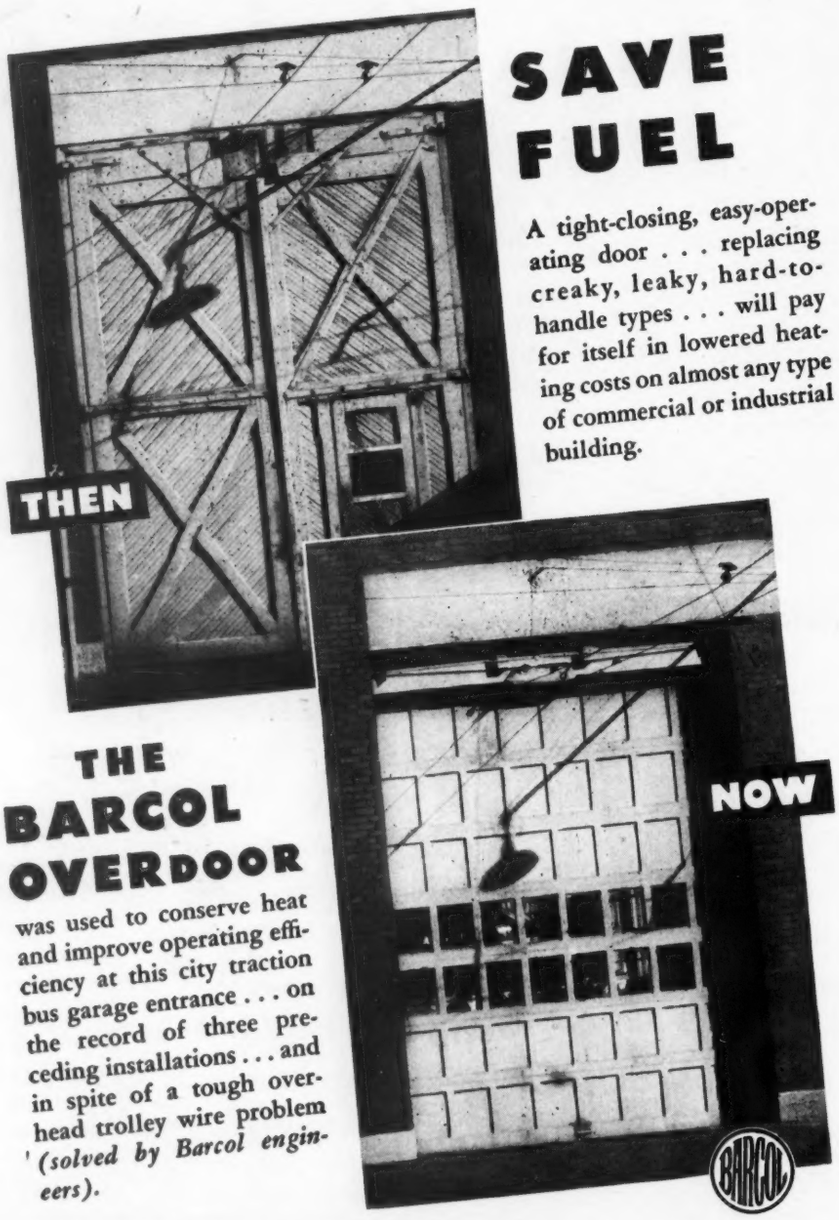
Section 1 covers the purpose: to improve the area's conditions and employ men freed from war duties. Section 2 offers a valuable set of definitions of terms most often used in planning. Section 3 suggests the mechanism for changing the city's existing planning council into one with the necessary powers. Sections 4, 5, 6, 7, 8, cover the planning council's powers. Sections 9 and 10 provide for transfer of property from city to redevelopment corporation. Section 11, enablement to accept state or federal aid. Financial, broadening and limiting powers, and advisable general regulations take up the remaining nine sections.

This has the appearance of an ideal local act with enough flexibility to make it useful under many types of city governments.

Postwar City Planning and Rebuilding

Address at Northeast Regional Conference, National Association of Housing Officials, Boston, Mass. April 9, 1943. By Jacob Crane. Mr. Jacob Crane is Director of Urban Studies, Office of the Administrator, National Housing Agency, Washington, D. C. He warns here that war housing is expendable and so is not backed by the type of thought which must initiate postwar work, and predicts as have many others that housing needed so sorely will be perhaps the most important factor in absorbing those men released from the fighting. Enormous amounts are being saved so that low income groups will have more to pay for their homes and at the same time, developments in construction during the war have made low-cost houses more accessible to these people. Warning that no single part of an urban area should be considered an independent community, but that the total area involved should affect the planning thought, he stresses elasticity of planning to provide for changes, and the need to begin now to plan.

This discussion of the problem hits the most important factors in planning consideration and is one of the most uncluttered, to-the-point presentations of the preliminary aspects of city planning.



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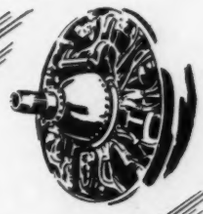

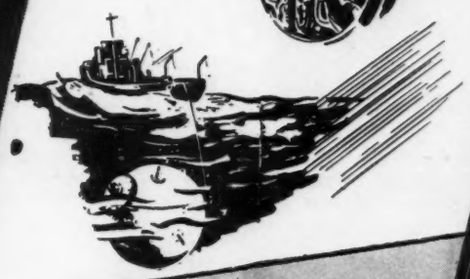

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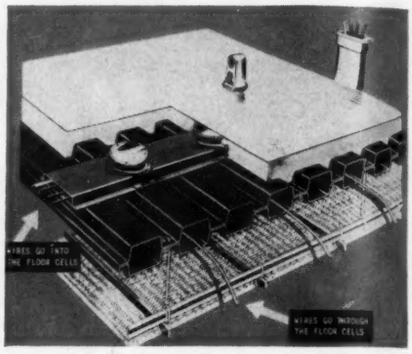
Manufacturer's Literature

Publications mentioned here are all 8½ x 11" unless otherwise specified and will be sent, free of charge, upon request. When writing for any of the literature noted here, please mention NEW PENCIL POINTS.

Plant Amplifying System

Plant broadcasting or amplifying equipment is becoming increasingly used during this highly-geared wartime production. To fill this need for plant broadcasting of music, management talks, general announcements, warning signals, etc, the BELL VOICE PAGING SYSTEM offers for the first time a standard industrial system adaptable to practically any plant requirement. Until now equipment of this type had to be either custom-built or made up of light duty standard commercial units. *Bulletin No. 37* of the Bell Sound Systems, Inc., (1183 Essex Avenue, Columbus, Ohio), describes the new equipment in detail, and claims for it: heavy-duty service, high-power amplification, fool-proof and tamper-proof operation, long maintenance-free service, ease of adaptation to future expansion. The size of the system is regulated by the number of basic units put into a set-up.



Steel Q-Sections

A Robertson's-Eye View of Postwar Buildings is the title of a booklet recently published by the H. H. Robertson Company of Pittsburgh, Pennsylvania. The data shown aims to provide the reader with what Robertson believes to point the way to postwar building types, in commercial, public, industrial, and residential construction. Reproductions are given of the designs of well known architects, H. T. Lindeberg, Richard J. Neutra, J. Gordon Turnball, Holabird and Root; also photographs of current war construction. The Robertson Q-Section floor, wall, roof and partition form of construction is explained in detail with special stress laid upon the adaptability for electrical wiring, speed of erection, and the practicalness of this type of construction.

Pressure-Treated Wood

Economical and Permanent Construction with Pressure-Treated Wood is the very explanatory title of the new booklet published by Koppers Company. The story of treating wood against decay, fire, acid, termites, and marine borers is simply told and the relative uses of different preservative agents are given. Applications which are illustrated and explained are those in the construction field, the farm, highway, industrial, marine, mining, oil, railroad, utility, and miscellaneous fields. Especially interesting photographs are: those of the huge treating cylinders into which charges of ties are rolled on tracks for pressure-treatment; and the 18-times-actual-size glass and wax model of a colony of termites showing "the five forms normally found in each colony—the soft-bodied, gray-white workers, which do the damage, the large-headed soldiers, the brown-winged sexual individuals, the king, and the enormously distended queen, which produces hundreds of eggs each day." (Koppers Company, Pittsburgh, Pa. 24 pages.)

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4) SIMPLIFIED ENGINEERING FOR ARCHITECTS AND BUILDERS
By Harry Parker
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6) STANDARD PLUMBING DETAILS
By Louis J. Day
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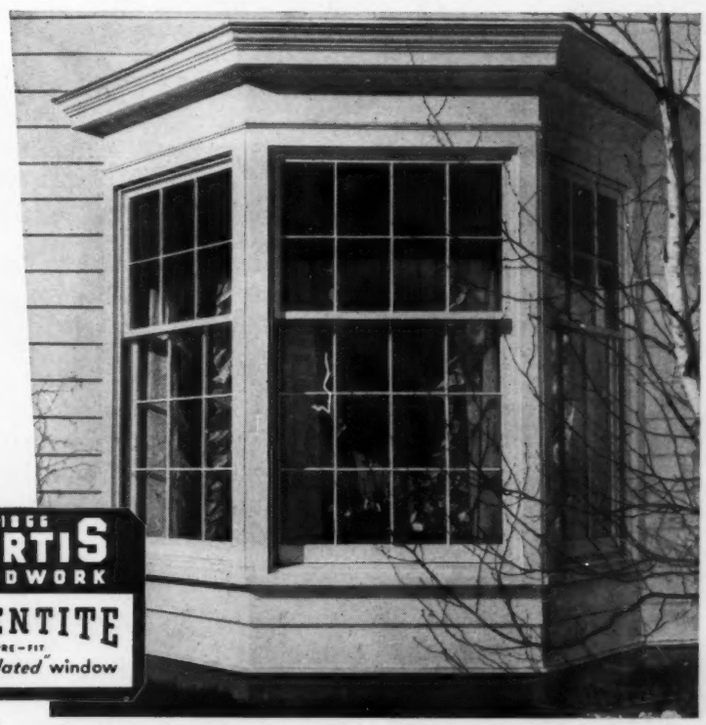

TOMORROW'S WINDOWS WILL HAVE GREATER WEATHER-TIGHTNESS

REVIEWS

Manufacturer's Literature

(Continued)

Film on Welding Process

A 16mm. full color, sound film on Welding Stainless Steel is being offered by the *Allegheny Ludlum Steel Corporation* free to companies, trade or technical groups, industrial schools or colleges, etc. Its purpose is to serve as an aid in teaching welding students, as well as welders familiar with carbon steel welding, the fundamentals of working with stainless steels. While primarily produced to explain stainless steel welding in simple terms that a shopman can understand, there is much to interest the most experienced metallurgist or engineer in this film. Particularly unique are the extreme close-ups of the arc at work, greatly magnified so that the action of the protective flux and the very melting of the rod metal can be clearly seen. This is a two-reel film which requires approximately 25 minutes to show. It can be obtained from the Allegheny Ludlum Steel Corporation, Brackenridge, Pennsylvania. All requests should list alternate dates so that arrangements can be made to have a print available for one of those dates.

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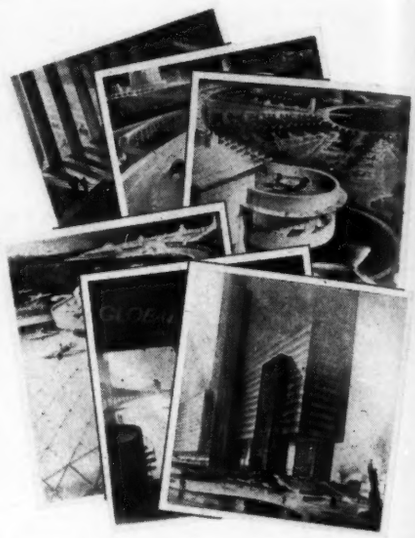

Hugh Ferriss' Drawings

Many readers will be glad to hear that the series of drawings by Hugh Ferriss which have appeared on the rear covers of New Pencil Points this year are being reproduced by the *Trinity Portland Cement Company* and will be sent free of charge to interested architects who would like to have them for framing. Requests should be addressed to the Trinity Portland Cement Company, 111 West Monroe St., Chicago 3, Illinois.

Samuel Chamberlain's Drawings

The series of pencil drawings made by Samuel Chamberlain for the advertising of *Typhonite Eldorado Pencils* and printed in New Pencil Points from time to time have been collected into a portfolio and reprinted for persons who would like to have them for framing, free of advertising copy. Requests should be addressed to Pencil Sales Department, Joseph Dixon Crucible Company, Jersey City 3, New Jersey.

Giant Calendar

A useful elephant size (15¾" x 24½") combined weekly and monthly calendar pad, printed in six colors, that can be seen a mile away is being offered free, upon request on a business letterhead, by The Frederick Post Company, Box 803, Chicago, Illinois. A section of technical data for the engineer and draftsman is included, containing charts on wire and sheet metal gauges, screw threads, etc.

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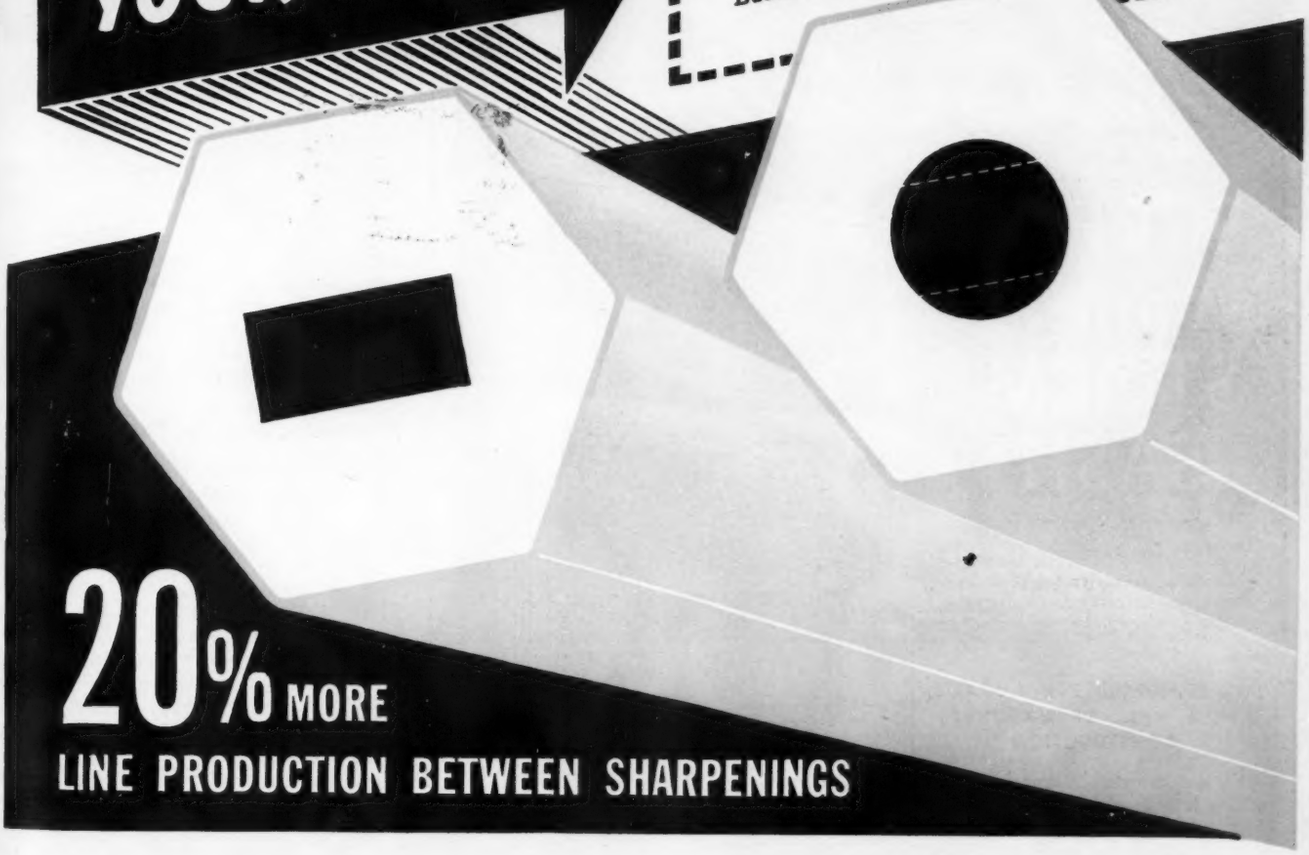

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THE EBERHARD FABER DRAWING PENCIL WITH THE HI-DENSITY MICROTOMIC LEAD

NEWS

(Continued from page 22)

Products Progress

Koroseal

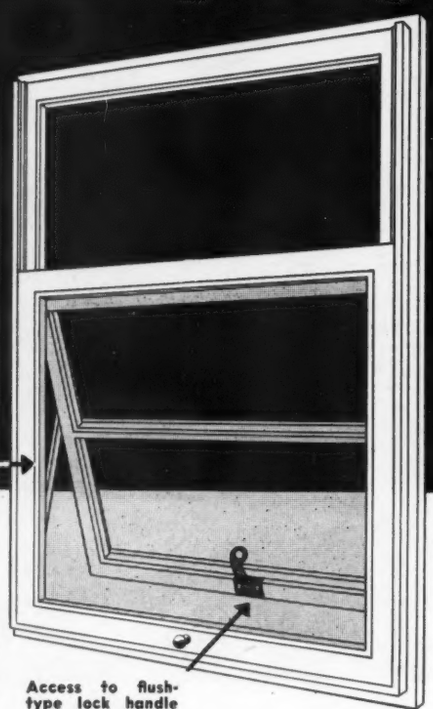
Of the familiar pre-war synthetic, KOROSEAL, used in shower curtains, transparent belts, suspenders, rainwear, etc., 90 percent of the current heavy production has been allocated to direct military uses. Of this amount 60 percent has gone into sheathing for wire and cable, largely on shipboard, and another 25 percent has been used for waterproof clothing for the Army and Navy where these koroseal-treated garments are said to prove able to withstand arctic-tropic temperature extremes no previous service clothing could take.

Postwar outlets for this polyvinyl chloride plastic are assured and will probably include such equipment as insect screens which can be left in place the year around, will need no painting, and may be rolled up like a window shade; also bendable and "expandable" water pipes which will not rust or corrode; coated wallpaper from which grease and finger prints can be removed with a damp cloth; garden hose in brilliant hues, one-third lighter than top-grade rubber hose and capable of lasting as long or longer; and outdoor furniture upholstery which will be impervious to sun and weather. (The B. F. Goodrich Company, Akron, Ohio.)

Now available with

SCREEN and STORM SASH

Screen and storm sash are interchangeable; snap in place; held by spring tension.

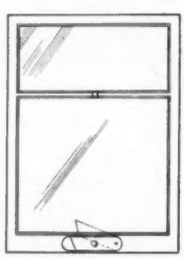


Access to flush-type lock handle by raising screen or through storm sash ventilator.

FOR STANDARD 2 x 4 FRAME, THIN WALL OR MASONRY CONSTRUCTION

Units are completely assembled. No fitting is necessary on the job. Sash and frame are of white pine, toxic-treated with water repellent "Woodlife." Windows are set right in studding, requiring no frames, sash weights or balances. Flush-type lock handle is an exclusive design feature. Standard sizes: 2 to 4 lights wide by 2 to 4 lights high. (1'-11½" to 3'-3½" wide by 2'-5⅞" to 4'-7⅞" high.) Units can be glazed with standard size lights. The Pella Awning Window complies with Federal Housing Authority Specifications. Sizes readapted to your specifications if quantities warrant.

Rush your request for FREE, full size details to the Rolscreen Company, Dept. 163, Pella, Iowa



Inside storm sash easily removed for extra ventilation and window washing.

Pella

AWNING-TYPE WINDOWS

Made by makers of Pella Rolscreens, Venetian Blinds, Casement Units

Coat Hooks of Tenite

For the Bureau of Ships of the United States Navy TENITE is being used to manufacture coat hooks. Regulation Navy copper-brown is their color and they replace those of brass and bronze formerly used in the ships of the Navy and of the Merchant Marine. The Pyro Plastics Company, Westfield, New Jersey makes these hooks of TENITE which is a cellulose acetate butyrate product of the Tennessee Eastman Corporation, Kingsport, Tennessee.

Protective Film for Papers

A protective covering for maps, charts, blueprints, tracings and other papers—a new plastic product—has been announced by Arthur Brown and Bro., 67 West 44 Street, New York City. The name is PRESTO-SEAL. It is a thin, flexible, transparent film that adheres instantly to any surface and is moisture-proof, dirt-proof, and grease-proof. Pencil, ink, crayon, or typewriter can be used to write on the surface and can be erased or wiped off with a damp cloth when it has served its purpose. Repairs on torn sheets can be made with this material. Of interest is the use of PRESTO-SEAL on the battlefields where it has covered campaign maps handled under most adverse conditions, dust, sand, moisture, numerous foldings. This product comes in rolls; after being cut to size it can be applied by stripping off the backing and pressing down firmly on the surface to be covered.

Ventilating Unit

A new CLIMATE CHANGER VENTILATING UNIT is being manufactured by The Trane Company (La Crosse, Wisconsin). It is a factory assembled unit containing heating coils, motor driven blowers, fresh air regulation dampers, all of which are enclosed in a casing having a fresh air inlet and an air outlet. This unit is designed to heat and ventilate a space by circulating air through it. It can be installed either within or adjacent to the space to be heated. Capacities range from 1200 to 14,000 CFM and the unit is available in four sizes of both horizontal and vertical types and two sizes of horizontal types only.

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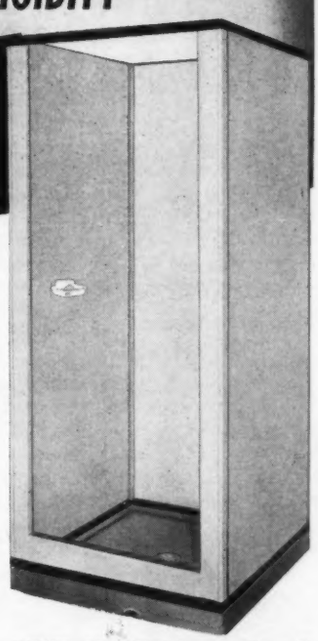

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Products Progress *(Continued)*

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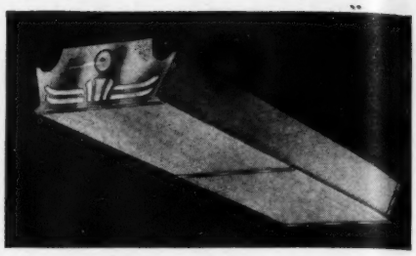
Wall Paper

The United Wall Paper Factories, Inc. launched another of their new lines, a TRIMZ PRODUCT, in November. This decorative flower strip, printed in several colors, is one that can be used in many patterns with a plain wall as background. Because of its irregular edges and adaptability it will be an incentive to decorators for original expressions.



A New Fluorescent Fixture

A new, improved "lightweight" MITCHELL U.R.C. RESEARCH LUMINAIRE, designed to use less than 6 pounds of metal in accordance with the latest W.P.B. regulations, is now available. It combines high intensity illumination with low surface brightness and eliminates excessive glare. The one model, No. 2032, is adaptable for every type of interior, for surface or for pendant mounting, for individual or for continuous row lighting. A 200-watt, four-light fixture requiring little tiem and effort for installation according to the manufacturers. (Mitchell Manufacturing Company, 2525 Clybourn Avenue, Chicago 14, Illinois.)

Pregwood, a "War Baby"

Great hopes are held for the uses of PREGWOOD in the postwar period. This material has been developed during the war for use in airplane propellers. First it was conceived as a "metal substitute", brought to the United States from France, studied and analyzed here, and developed to a high point. Raw maple wood is soaked in phenolic resin varnish, stacked on a pile with spacers and the solvent in the varnish is dried out in an oven, leaving resin-impregnated wood. Then it is subjected to high pressure and temperature, the resin is softened and the wood is squeezed down; a chemical reaction takes place which finally hardens the resin. Material is then machined to size by sawing and planing. Boards are glued together by an electrostatic machine into blocks from which propellers are carved.

Special qualities of PREGWOOD are: high damping capacity, that is great vibration absorption, which in turn provides cushioning for the motor of an airplane; great fatigue characteristics; light weight, it being half the weight of aluminum, per volume; the ability to be repaired by the simple process of gluing.

Postwar applications of PREGWOOD are conceived to be: electrical insulation where high strength is a factor; industrial applications where vibration absorption, directional quality, and other physical properties are of advantage; sports products including golf clubs, skis, toboggans, etc. where strength and resistance must be high; decorative applications where the refinishing quality, appearance, and endurance are of importance; aircraft equipment including propellers, navigators' rules, antennae masts bearing plates, etc.; and automotive station wagons, because of water resistance and lack of cold-flow.

HERMAN NELSON
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installed at Douglas Aircraft Chicago Plant

Over 400 Herman Nelson Vertical Shaft Propeller-Fan Type hiJet Heaters are supplying comfortable temperatures in working areas at the mammoth new Chicago Plant of the Douglas Aircraft Company. Because Herman Nelson hiJet Heaters provide heat where it is wanted and when it is wanted, without waste of fuel or space, they are vitally important to the world's largest exclusive cargo-plane manufacturing plant. In addition to many models, sizes and arrangements of hiJet Heaters, The Herman Nelson Corporation manufactures Autovent Fans and Blowers for industrial, commercial and public buildings. Thus practically any heating or ventilating problem can be most satisfactorily and economically solved with Herman Nelson equipment.

The Chicago Douglas Plant is scheduled to produce great numbers of these C-54 "Skymasters."

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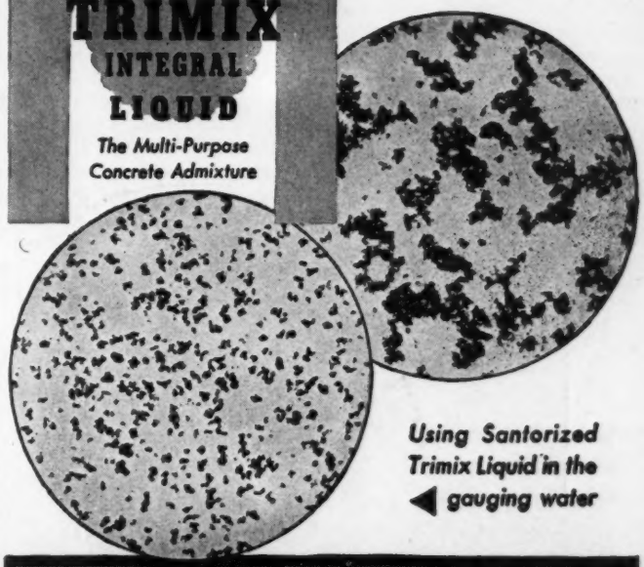

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SECTIONS 5/21 — 17/18

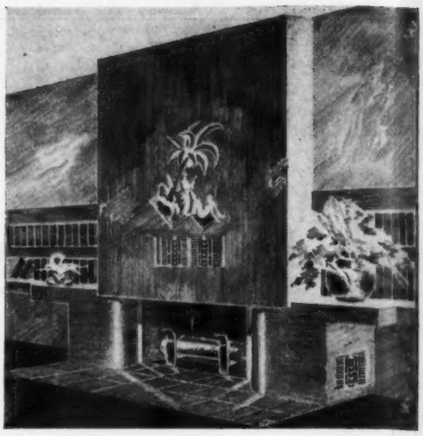
Where Results Count— Count on Sonneborn

NEWS

There is something relieving and relaxing about going through Lord and Taylor's fall interior show (New York). The relaxation is due not primarily to the pleasant tone of humor displayed but to the fact that at last a selling organization can let down its hair and have a good time, instead of always being on a high-powered alert to put its best, most costly foot forward.

This time they have set out to be of service to Mrs. Small Timer, even showing her how to palliate the old, old-fashioned iron-legged bathtub by pretending it is a circus wagon, by draping red satin canopies over and down, by tying it to a black carrousel charger via gorgeous red and black ribbons and a bouquet or two. No less than Robert Benchley could repose therein and do witty justice to this scene.

This department store must have toyed with the idea of a facetious exhibition some time before deciding to gamble and try it. But what else could have been half so successful in a year that offers practically no furniture for sale? The seller merely has to mark time with gadget displaying even though customers' pockets are bulging to look like cornucopias.



First prize winning design for a mantel for a Majestic Circulator Fireplace, awarded to Robert F. Mah of Bronx, New York, in a competition held by the Majestic Company, Huntington, Indiana. The second prize was received by Charles K. Hirzel of Richmond Hill, New York, and the third prize by Harry Leslie Walker of Bronxville, New York. Honorable mention was given to Harold J. Schaller of Long Island City, New York.

The especial problem involved was to incorporate in the design of the mantel certain cool air and warm air inlets and outlets necessary for the efficient operation of the fireplace.

The judges were Wilfred A. Paine, A.I.A., of Paine and Crumley, Architects, Columbus, Ohio; Herman J. Albrecht, A.I.A., of Albrecht and Wilhelm, Architects, Massillon, Ohio; and George Hermann, A.I.A., of Hermann and Brown, Architects, Dayton, Ohio.

The Society of the Plastics Industry held its fall conference November 8th and 9th in New York City during which a lecture was given by Alden B. Dow of the Dow Chemical Company on *Plastics in the Home of the Future.* He held out great hopes for improved ways of building saying "We do not want buildings, one a replica of the other, rolling from a mass production line across our country. We do not want stock houses that can be traded in on a new model every year or so. We want a flexible material, varied in color and texture, from which the individual may build, as simply as a child with blocks, anything his heart desires and add to it as the years go by. This may sound like wishful thinking, but it seems to me that the plastic industries have the materials that may meet every requirement for a simpler and more flexible way of building."

He spoke of searching for a plastic that would serve as an outside cover, an inside lining, and an insulating quilt for wall frames; of a flexible plastic that will care for the expansion problems due to moisture and temperature changes; of translucent and transparent walls; of floors with varying degrees of resiliency; of piping that is impervious to freezing temperatures; and of fabrics composed of small prisms.

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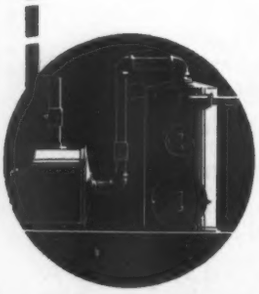

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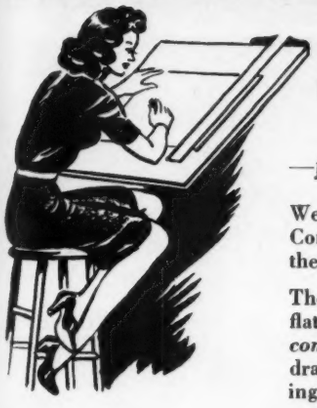

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By Theodore DePostels, A.I.A.
Edited by Don Graf

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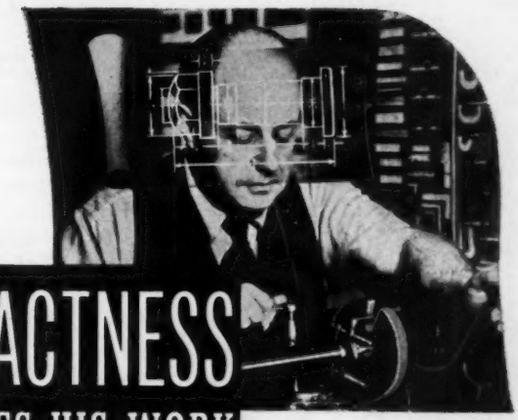

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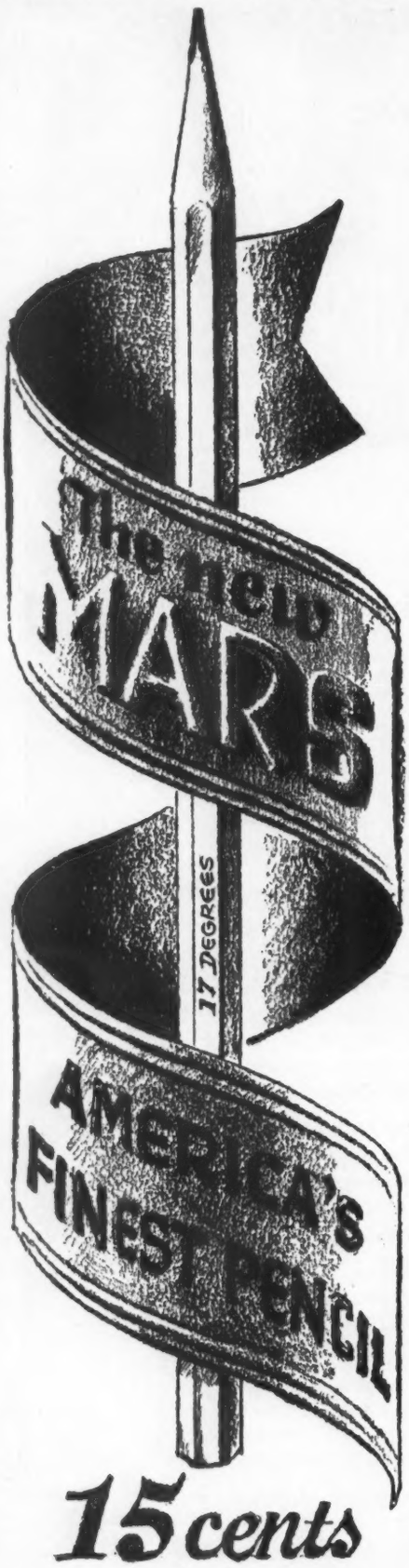

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(Continued from page 10)

FLEXIBILITY

The following article, sent us for publication by Roi L. Morin, Portland (Oregon) architect of considerable standing and reputation, merits careful attention, in the opinion of the Editors. We know of one case in which it caused tears to come to the eyes of the reader; in another, it affected an extremely sincere and serious gentleman quite—ah—seriously. We had not expected the latter reaction; but perhaps some among us could stand being reminded of our sense of humor.

When I was a very young man some of my long-haired friends attributed many ills of mankind to "improper distribution." Ill-versed as I was in the hypotheses of Adam Smith and Karl Marx, I visualized a lack of freight cars and roads for delivering man's products to his less-favored brethren and never analyzed the matter further. Years later I came to understand the economic maladjustment that gave birth to this misleading qualification of the term "distribution."

I wonder now if the same loose and ambiguous talk doesn't exist anent the much bandied architectural term "flexibility." In the roaring twenties I groped for an understanding of the phrase "flexible planning." As a detail draftsman this term puzzled and annoyed me. It seemed that partitions and walls were to be moved about at will. As moulding, panelling, cornices, and bases were gradually discarded it appeared possible, at first glance, that partitions could be moved about, but, as the surface treatment of space became barren, the walls took on more and more concealed mechanism until an X-ray photo would show them literally crawling with devices and equipment. How then could they be more flexible? Today, with the addition of radiant heating, insulation, acoustical treatment and the vast technology to which even the layman is becoming privy, walls and partitions have become so "busy" that even the insertion of a picture-pin has become questionable procedure.

It took me a number of years to discover that what advanced thinkers meant by "flexibility" was apparently a lightened *poché*. With this I am in full accord. With the newer materials and advanced stress technology it is no longer necessary to introduce heavy blacks in a plan to indicate either structure or phony symmetry. Then why not say so?

Now we have digressed* through the nat-

* Perhaps Mr. Morin intended to use the word "progressed" here. However, his original manuscript, available at the editorial offices of NEW PENCIL POINTS, is here followed precisely. Either word might be apt, depending on the point of view.—Editor.

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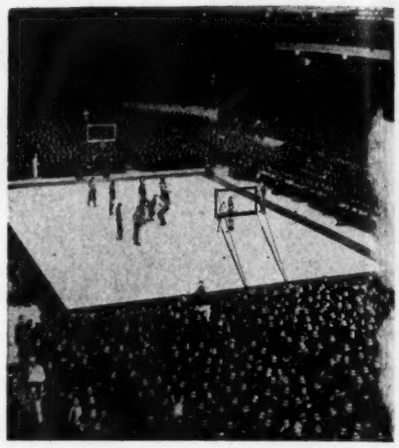

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VIEWS

ural cultural lag that exists between any professional advancement and lay understanding to the point where the public is beginning to demand the same flexibility in practice that we have been boasting of in theory. It is as though Mr. John Q. Public requested the motor car manufacturers to move the dashboard, with its manifold gadgets, to the rear seat so mother could play with it for awhile—as he was tired of looking at it.

This flexibility theory is vastly overdone and we may rue the day it was broadcast. As a matter of plain common sense, no building—if it is to function properly—is flexible in any respect. Hospitals, schoolhouses and other buildings with special functions are not "flexible" (as the term is now understood by the public), and the idea that you can move the partitions of the venereal clinic two or three mullions over to increase or decrease the size of the room (thereby enlarging or reducing the X-ray room or pharmacy) is idiotic. Even the most "flexible" of all rooms—the bedroom of a modest dwelling—has become less flexible than ever. Before the advent of large unsymmetrical glass areas, radio, phone, and electric wiring, Mrs. John Doe never looked upon her bedroom furniture as static, but reserved two or three walls for rearrangement of beds. In a real modern house today there is one, and only one place to locate the bed, or beds, and as a rule they cannot be moved six inches one way or another without throwing something out of kilter. So much for "flexibility!"

How far this "flexibility" aberration has progressed is evidenced by the first prize design of a recently concluded Postwar Living Competition wherein is included a "turntable" fireplace built like a retort and mounted on a pinion to be cranked around to face several angles and as many rooms—or living areas. Now if a fireplace consisted simply of a hole in the wall in which you tossed fuel, together with a flue to the outside air, this scheme might work. But in my experience fireplaces are far more complex than the elementary one here indicated. Referring to working drawings of a particular four-room house plan I find that the single living room fireplace, with its adjoining wall, contain the following *minimum* elements:

1. flue from furnace below
2. ash dump
3. damper
4. flue from fireplace
5. built-in safe
6. flanking bookcase
7. radio in bookcase
8. fire screen
9. wood lift
10. wood box
11. record cabinet in bookcase
12. flanking doorway
13. 2 fluorescent light fixtures
14. 6 x 14 hot air riser duct
15. telephone outlet
16. 2nd floor wiring risers

—and last, but not least, an adequate foundation, a hearth, lining, and facing as prescribed by the Board of Fire Underwriters, *and flashing where it passes through the roof.* On the back of this wall (but attached to it) is the main staircase, a broom closet, door chime, and whatnot!

And the sad commentary on all this construction is that I cannot guarantee to my client, with any degree of accuracy (odds about equal to placing a quinella bet in a dog race) that the fireplace will not smoke—that it is splayed properly to throw out heat and that the flashing and chimney top are absolutely watertight. Is there any fool-proof scientific data on fireplace and chimney construction? I knew all the Covert, Brick Mfrs. Association, and Board of Fire Underwriters' data by heart before my 25th birthday. It all helps but fireplace and chimney construction is still in a trial-and-error stage. Now we have to start all over on "turntable" fireplaces!

The present-day architect is between two fires. He finds himself compromising between a school of planning that advocates the widest scope of rearrangement and movement with technical advances that dictate a place for everything and everything in its place. Moreover, in pursuing this flexibility theory, he finds himself combating natural human inertia and the desire for familiarity. I, for instance, have a specific location for my toothbrush, drinking glass, ash tray, neckties and a hundred and one simple, everyday necessities, and to awaken some morning to find my shaving mirror relocated out on the back porch instead of on the wall opposite the bathtub—where I have subconsciously known it to be for years—would not only be discomforting but completely undesirable!

Perhaps we are living through a phase of confusion and the time will come when people *and things* will stay put. This passion for schoolrooms, dwelling houses, filling stations, restaurants and other buildings that can be taken down piecemeal and relocated miles away on different terrain and with different orientation is a madness that may pass. The human mind is being strained and I sometimes fear for our sanity.

After all no one has yet advocated a demountable sewer, or curb, or sidewalk, or tree, or sunset—and these things are fundamental.

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